A2940-1

ASCE SALARY SURVEY 1983

A Report prepared by the Committee on Employment Conditions of the Professional Practice Division of the American Society of Civil Engineers

Revised Edition

Published by the
American Society of Civil Engineers
345 East 47th Street
New York, New York 10017-2398

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ISBN 0-87262-410-2
Manufactured in the United States of America.

ASCE
1983 Salary Survey

Report by the Committee on Employment Conditions

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ASCE
1983 Salary Survey

Report by the Committee on Employment Conditions of the Professional Practice Division

I Introduction

Periodic salary surveys are useful tools for both employers and employees. ASCE has recognized this since 1914, when it published its first known salary survey. The society continued to conduct surveys at varying intervals until 1950, when the survey became a scheduled, biennial project. This report is for the 17th ASCE Salary Survey in that biennial series. A bibliography of previous surveys of the series is in Appendix IV. The Committee on Employment Conditions (COEC) has been charged with conducting the periodic salary surveys since the committee was established in 1971, in conformance with society bylaws to "collect, codify, and prepare for distribution such data as may be calculated to be of value to civil engineers, both employers and employees, in connection with proper classification of engineering positions and equitable compensation for services. . . ."

Salary survey questionnaires are sent to employers during the third or fourth quarter of odd-numbered years, and the data collected represents, therefore, salary and benefit conditions for that period. This report is for the fourth quarter of 1983. Salary data from other sources are available covering other periods, as discussed in Section V. Salary data were collected and analyzed based on ASCE Professional Grades for eight employment categories in seven regions. The employment categories included private employers (consulting firms; construction firms; design/construct firms; and railroads, utilities, and industries), public employers (state government departments and agencies; municipalities, counties, and regional authorities), and education (12-

month contract basis; 9-month contract basis). Federal agencies were not surveyed since the majority of Federal salaries and benefits are standardized by the Civil Service Commission, and are a matter of public record. A table of Federal G.S. grades and salaries is included in Appendix I, and a table relating ASCE Grades and Federal G.S. Grades is in Appendix III. Six regions within the continental United States were included, with Alaska, Hawaii and foreign responses comprising the seventh region. In addition to base salary data, detailed information on nonsalary benefits was requested, along with feedback from employers concerning their familiarity with use of ASCE's Manual 55, *Guide to Employment Conditions for Civil Engineers*. Although a few improvements were made to the 1983 Salary Survey, most questions are the same as other recent ASCE Salary Surveys, permitting easy comparison.

The summary of Findings in Section II highlights some of the results. A complete listing of the data, tabulated and cross-tabulated as in prior years, comprises Appendix I.

II Summary of Findings

This summary presents some of the more important data and its analysis, as developed from this survey. A more complete discussion can be found in Section IV. Median salaries are used as the basis of comparison with previous years, but the 1983 Survey report also includes some mean (average) salary results. Data are included in Appendix I.

The 1983 Salary Survey is based on returns received from 575 organizations representing 25,939 employees. A breakdown of responses is shown in Table 1. By comparison, the three previous survey analyses were based on 637 organizational responses representing 33,269 engineers (1981), 894 organizational responses representing 49,527 engineers (1979), 736 organizations, and 40,870 individuals (1977). Only 9% of the employees represented by this year's sample are publicly employed engineers as compared to last year's 40%. It is estimated that the total response represents approximately 15–20% of civil engineers in the United States.

In the two-year period since the 1981 survey, the average combined median entrance salary for all grades increased 6.0% from $30,660 to $32,493. This statistic is computed from the average median entrance salary for each professional grade from I/II through IX in each of six employment categories, and is a good trend-indicator. Construction and design/construct firms were combined into one category for computation purposes so that a comparison with 1981 and prior results could be made, as the categories were not divided prior to the 1981 survey.

TABLE 1.—Number of Responses by Employment Category

Employment category (1)	Number of organizations (2)	Number of Individuals (3)
Private employer		
Consulting firms	308	7,257
Construction firms	17	176
Design/Construct firms	16	444
Railroads, Utilities, and Industries	46	14,217
Public Employers		
State government departments and agencies	123	1,732
Municipalities, counties and regional authorities	17	675
Education		
12-month contract	12	762
9-month contract	36	676
Total	575	25,939

TABLE 2.—Average Percent Increase of Combined Median Entrance Salaries, for All Grades

	Year					
(1)	1973 (2)	1975 (3)	1977 (4)	1979 (5)	1981 (6)	1983 (7)
Percent Increase	8.3	19.9	13.6	14.9	20.7	6.0

TABLE 3.—Percent Increase of Averaged Median Entrance Salaries by Employment Category, for All Grades

Employment category (1)	Average median entrance salary in dollars, for 1983 (2)	Percent increase over 1981 (3)
Consulting firms	33,635	6.5
Construction firms	35,190	5.3[a]
Design/Construct firms	34,504	5.3[a]
Railroad, utilities, industries	34,456	2.5
State government departments and agencies	27,902	4.0
Municipalities, counties and regional authorities	31,627	12.2

[a]Construction and design/construct firm categories combined for computational purposes in order to compare to 1981 results.

Educational employment is excluded from the calculation. Data from which these figures were computed can be found in Appendix I, Tables 2–7. Comparative results for the last decade are summarized in Table 2. By categories of employment, the average median entrance salaries, and the percent increase from 1981, are shown in Table 3. A trend analysis of these same categories and median salaries over a 4-yr period (1979, 1981, and 1983 Salary Surveys) is noted in Table 4.

Additional analyses conducted included a look at overall mean (average) and median salaries by employment categories (the previous comparisons were based on the averaged median salaries for the eight ASCE Professional Grades in each category). The overall median, excluding education, was $28,824, up from $27,117 in 1981, a 6.3% increase. The overall mean (average) salary, computed in the same fashion, was $30,449. A breakdown by employment categories can be found in Appendix I, Table 19.

Starting salaries for those entering the profession in ASCE Professional Grades I/II for each of the employment categories are shown in Table 5. The average median starting salary was $19,600, a 4.4% increase over 1981 as compared to an increase of 25% between 1979 and 1981.

Regional comparisons of median salaries by employment category and by Professional Grades are included. In the regional analysis, the average of regional median starting salaries (Grade I/II) irrespective of

TABLE 4.—Percent Increase of Averaged Median Entrance Salaries by Employment Category between 1979 and 1983, for All Grades

Employment Category (1)	Percent Increase of Averaged Median Entrance Salary over Prior Report Period			1979–1983 Total Percent of Increase (5)
	1979 (2)	1981 (3)	1983 (4)	
Consulting firms	15.7	23.7	6.5	52.5
Construction firms	17.9	24.0[a]	7.2[a]	46.3[a]
Design/Construct firms				
Railroad, utilities, industries	18.1	17.7	2.5	42.6
State government departments and agencies	13.1	17.0	4.0	37.7
Municipalities, counties and regional authorities	9.0	20.9	12.2	47.9

[a]Combined results as noted previously.

TABLE 5.—1983 Starting Salaries, Grade I/II

Employment Category (1)	Mean starting salary, in dollars (2)	Ranges of starting salaries in dollars		Median starting salary in dollars (5)	Percent increase in median salary over 1981 (6)
		Low (3)	High (4)		
Consulting firms	19,656	10,000	21,500	18,660	6.6
Construction firms	18,504	13,837	24,000	18,000	−7.5
Design/Construct firms	18,199	12,000	24,000	18,900	3.7
Railroad, utilities, industries	21,689	15,000	30,000	21,872	3.1
State government departments and agencies	18,336	13,369	23,583	18,042	4.0
Municipalities, counties and regional authorities	20,934	14,500	25,641	20,976	10.7

employment category was $19,237. This represents a 17.4% increase over the 1981 figure of $16,384.

A survey of benefits revealed the trend of increasing fringe benefits was on the decline. The overall average cost of fringes as a percent of the base payroll was reported to be 34.3%, down from 38.9% in 1981. Table 6 reviews the trend in fringe benefits for the decade. For comparison purposes, the report of benefit costs by employment categories is shown in Table 7.

General trends in fringe benefits can be seen from the overall average costs of various benefits, as reported in Table 8. The trend assessment in the right column suggests that incentive compensation, retirement, life insurance benefits are those tending to decline while the remaining benefits are on the increase. Incentive compensation has resulted in the largest decrease by going from 10.03% in 1981 to 7.55% in 1983.

TABLE 6.—Average Overall Benefit Cost, as a Percent of Base Payroll for the Decade 1973–1983

(1)	Year					
	1973 (2)	1975 (3)	1977 (4)	1979 (5)	1981 (6)	1983 (7)
Percent of base payroll	29.55	28.97	34.40	36.51	38.94	34.3

TABLE 7.—Average Fringe Benefit Cost, as a Percent of Base Payroll by Employment Category

Employment Category (1)	Fringe Benefit Cost as a Percentage of Base Payroll			Change in Percent (increase) 1981–1983 (5)
	1979 (2)	1981 (3)	1983 (4)	
Consulting firms	34.6	36.8	33.0	− 3.8
Construction firms	42.3[a]	50.7	39.5	−11.2
Design/Construct firms		47.5	28.2	−19.3
Railroad, utilities, industries	38.7	51.6	33.2	−18.4
State government departments and agencies	33.8	42.6	36.5	− 6.1
Municipalities, counties and regional authorities	35.2	40.9	22.2	−18.7

[a]Construction and Design/Construct firms were not divided into two categories until 1981.

TABLE 8.—Average Cost of Various Benefits as a Percent of Base Payroll of All Employment Categories

Benefit (1)	Fringe Benefit Cost as a Percentage of Base Payroll			Increase (+) of Decrease (−)	
	1979 (2)	1981 (3)	1983 (4)	1979–1981 (5)	1981–1983 (6)
Vacation	5.36	5.04	5.17	−	+
Holidays	3.36	3.21	3.32	−	+
Sick leave	3.38	3.06	3.15	−	+
Military leave	1.82	1.39	1.60	−	+
Incentive compensation	9.81	10.03	7.55	+	−
Retirement	8.73	9.63	8.13	+	−
Social Security	7.59	8.37	8.59	+	+
Professional dues	1.40	1.32	1.34	−	+
Insurance, medical	3.99	4.61	5.12	+	+
Insurance, life	1.44	2.01	1.53	+	−
Education	1.00	.89	1.07	−	+
Separation allowance	3.63	2.00	2.40	−	+
Other	3.22	3.60	3.63	+	+

With regard to ASCE's Manual 55, Guide to Employment Conditions for Civil Engineers, 41.8% of the employers indicated they were familiar with the Manual, up from 38.4% in 1981, 34.7% in 1979, and 39.9% in 1977. Within the employment categories, as in 1981, consulting firms and educators were most likely to know about it while state government, railroads, utilities, and industries were least likely. Among those familiar with the Manual, over 80% felt their general employment conditions and work atmosphere were similar or better than the suggested programs in Section 4 and approximately 52% said their salary structure was similar or better than Manual 55's Section 3, Recommended Salary Ranges.

Tabulations on education levels and registration status were included, as in previous polls. Observations include the expected concentration of Ph.D degrees in consulting and education. A reduction in the percent of M.S. degrees found in the railroad, utilities, and industries employment category has gone from approximately 21% in 1981 to only 12.1% in 1983. Over 43% of the 25,939 engineers represented in the survey were registered professional engineers.

Although over 48% of all organizations have an understanding with employees about their Professional Grade classification, only about 22% say they use the ASCE Grade Descriptions in the organization. Over the last several surveys, a slow but steady increase has been observed in the percentage of organizations that have established some type of classification system.

III General Background

Sampling Procedure

As in previous years, the data presented in this report were obtained from representative sources on a sampling basis. Questionnaires were mailed to 9,431 employers in August, 1983 based on mailing lists compiled and updated by ASCE with assistance from local sections and branches. The questionnaire and other material sent to employees is shown in Appendix II. A 6.0% return was achieved after rejected questionnaires were eliminated. Responses are not necessarily uniform or representative of the entire profession. Some regional responses may be statistically invalid. Overall, median salary data obtained in this manner in the past by ASCE Salary Surveys has correlated well with median salary information provided by a large sample of ASCE members responding to the Society's periodic "Survey of the Profession." The data in this salary report are solely indications of current salary and

benefit levels at the time the survey was conducted, and should not be considered as recommended salary and benefits levels.

Employment Categories and Regions

Eight employment categories were used, as follows:

1. *Private Employer*

   Consulting Firms
   Construction Firms
   Design/Construct Firms
   Railroads, Utilities, Industries

2. *Public Employers*

   State Government Departments and Agencies
   Municipalities, Counties, and Regional Authorities

3. *Education*

   9-month contract
   12-month contract

Design/construct firms were separated from general construction firms starting in 1981; previously, they had been combined. Analysis of data in this report required that they be combined again for computational purposes to allow comparison with previous years. State government departments and agencies refer to transportation, highway, public works, or similar state organizations. In general, the categories are the same as have been used in previous surveys. Education responses have been broken into a 9-month or 12-month contract basis since 1975; before that only one education category was used.

Seven regions were considered for regional analysis, with the same boundaries as used in prior surveys. These region can be summarized as follows:

Region	*Territory*
1	New England
2	Middle Atlantic
3	Middle West
4	South
5	West (Plains)
6	Far West
7	Foreign (outside Continental U.S.)

Region 7 includes Hawaii and Alaska, as well as Guam, Puerto Rico, the Virgin Islands, the Panama Canal Zone, and miscellaneous responses from others outside the country. A map showing the six regions in the continental U.S. is included as Fig. 1 in Appendix 1. Employment category and regional data were developed from category and state/region codes entered by the employer.

Professional Grade Descriptions

ASCE's professional grade descriptions were used as the basis for determining expertise or level of responsibility for comparison of salaries in the survey, rather than years of experience. The grade descriptions have been used by ASCE for this purpose for a number of years. The system now in use is as revised in 1975 by ASCE's Committee on Employment Conditions and National Society of Professional Engineer's (NSPE's) Professional Employment Committee, working jointly. The resulting system is compatible with NSPE classifications and correlates with Federal G.S. Grades, so data reported in this survey can be compared easily with NSPE surveys and the Department of Labor's Bureau of Labor Statistics information. A summary chart showing the Grade Descriptions and a table relating the ASCE Grades and Federal G.S. Grades are included in Appendix III. A brief discussion on the use and limits of ASCE Professional Grade Descriptions has been included.

Special Questions

Employers were again asked about their familiarity with ASCE's Manual 55, *Guide to Employment Conditions for Civil Engineers*, and, if they were familiar with it, how employment conditions within their organization compared to the suggestions and recommendations in the Manual. There was also a question inquiring about the use of ASCE's Professional Grade Descriptions in the organization. Both inquiries had appeared in previous surveys to provide a means for the Committee on Employment Conditions to gage employers' use of these tools.

IV Comments on Data, Analysis, and Presentation

Most of the comparisons and trend analyses are based on median salary. The median is that number with 50% of the sample response lower and 50% higher. The middle 50% range is determined by eliminating the upper 25% and the lower 25%. The total range represents the lowest and highest figures reported, and the averaged result is the mean (average) figure for all responses to the category. Means (averages) tend to differ from medians most noticeably with increase in professional grade and when considering maximum salary rates for the various grades, as might be predicted. Means (averages) were added to the reporting in 1981 to provide another evaluation tool.

Reports by employment category (Tables 11–16 in Appendix I) show mean, median, middle 50% range, and total salary range for each professional grade for both entrance salaries into that grade and for maximum salaries in that grade. The difference between the low end of the entrance range and the high end of the maximum range is the total range of salaries paid for that grade. The median salaries for all grades were averaged and compared in various ways with previous data in Section II, "Summary of Findings." Growth trends are shown by graphs of median salaries for 1983 and several prior report periods in Figs. 4–9 of Appendix I.

In the past, the median salary has been assumed to be a reasonably accurate representation of salary rates for a category. Comparison of salary data reported anonymously by individual members of the Society in the extensive 1976 Survey of the Profession, plus the 1975 and 1977 salary survey data provided by employers, indicates the assumption was accurate for that period. Similar prior comparisons have yielded similar results. No attempt was made to weight medians according to the number of employees represented in a group or region.

Salary Trends.—Considering Table 2, it can be seen that the biennial percent increase of median entrance salaries was lower at the beginning of the decade than in recent years. The 1969 figure was 15.4% and 11.4% in 1971. Wage and price controls imposed by the Federal government during part of the 1971 and 1973 periods influenced engineer salaries during that interval. The 1975 increase was comparatively high and probably represented a rebound following removal of wage and price controls. Strong, steady percent increases were found by the 1977 and 1979 surveys, which were attributed to concern within the profession about previous low salary levels and the double-digit inflation rate at

that time. The large percent increase found by the 1981 survey is believed to reflect both the continued high inflation rate through 1980 and much of 1981, and a relatively strong demand for civil engineers, coupled with a limited supply of engineering talent. The recession of the 1982 and 1983 economy resulted in a weaker demand for civil engineers coupled with higher supply of engineering talent, which is reflected in the data of the 1983 survey as a 6.0% increase in the Median Entrance Salary.

The trends by employment category noted in Table 4 indicate a much lower rate of increase in median entrance salaries as compared to the last decade of data. For comparison purposes the increases of median starting salaries measured was 25% in 1981; 13.4% in 1979; 12.9% in 1977; 16.6% in 1975; and 6.6% in 1973. In general, the condition of the economy during the 1983 period is reflected in the lower rate of increase of average median entrance salaries, and more specifically, is reflected in the rate of increase of average median entrance salaries for railroads, utilities, and industries as 2.5%.

Job Classifications.—Many of the employers who responded to this survey have grade classification systems of their own, which differ from the ASCE professional grades, or have no formal classification system. Interpretation and interpolation were necessary for these employers to categorize their engineer employees according to ASCE grades for this report. It is possible that widely divergent figures reported in some of the total ranges are the result of misinterpretation of grade definitions, rather than marked disparity in salary scales. It is believed that consideration of mean and median salaries and the middle 50% range, as explained previously, help reduce the effects of this sort of distortion.

Education.—Educational employment was excluded from many of the comparisons of Section II. Education salaries were surveyed and are reported along with related data in Tables 17 and 18 of Appendix I. Exclusion of education from the comparisons is not intended to reflect unfavorably upon this employment category; it merely recognizes that different economic forces apply to educational employment. Data had been handled this way in previous reports, and this report continues that approach.

Benefits.—Fringe benefits have steadily become a larger and larger portion of total compensation, increasing from about 3% of base payroll in 1927 to the present level. Benefits surveyed in 1983 were the same ones monitored since 1975. Changes made for that 1975 survey included adding a "military leave/jury duty" category, consolidating the retirement category and eliminating an overtime category. Social security, unemployment, and workmen's compensation are taxes or insurance required by law, not optional benefits, but have historically been included on the list. It was found in past surveys that benefit data were easiest to handle when reported as a percentage of base payroll.

Since not all employers categorize benefits according to the list used in the survey, data had to be edited when reported values were for combinations of categories or when obviously skewed data resulting from probable misunderstanding about a category was received. Skewed data were discarded, and combined category totals (such as combined medical and life insurance or combined vacation, holiday and sick leave) were distributed equally into the survey categories, to avoid distortions of any one category. Table 31 of Appendix I was the result.

Incentive Compensation.—The value of incentive compensation paid in 1982 was surveyed by grade and employment category. Incentive compensation was defined as cash bonuses or profit sharing, or both. Employers entered these figures on the questionnaires. Results are shown in Table 32 of Appendix I. Average total cash compensation by grades and employment categories can be computed by taking the average of the entrance and maximum salary rates reported for each grade for the individuals who received incentive compensation and adding in the dollar value of the incentive compensation. A review of the questionnaire from Appendix II should make this clearer.

Regional Analysis.—Regions were defined elsewhere and are illustrated in Appendix I. In considering regional analyses, such as those developed in Table 10 and Tables 22–30 of Appendix I, it is necessary to have some indication of the origin of the data and their statistical validity. Table 1 shows the overall total by employment categories. The Regional Response Chart (Table 9) shows the regional breakdown. Conclusions can be drawn concerning the statistical validity of responses for certain employment categories in certain regions.

V Related Reference Sources

In the middle of even-numbered years, as opposed to the ASCE Salary Survey in odd-numbered years, the Engineering Manpower Commission of the American Association of Engineering Societies (formerly the Engineers Joint Council) collects basic salary information on engineering graduates for its biennial reports on the "Professional Income of Engineers." This report correlates salary with the number of years since receipt of the B.S. degree, rather than with grade descriptions. NSPE conducts periodic salary surveys based on professional grade descriptions. The College Placement Council conducts an annual survey of starting salary offers to bachelor degree candidates in civil engineering. Annual salary data are available from the Bureau of Labor Statistics from its National Survey(s) of Professional, Administrative, Technical, and Clerical Pay. The Scientific Manpower Commission periodically publishes "Salaries of Scientists, Engineers, and Technicians," collected from a variety of sources. Also, private firms conduct salary research. Many of these surveys are conducted at regular intervals using similar formats each time, so data can be compared from period to period and trends determined.

ASCE's Manual 55, *Guide to Employment Conditions for Civil Engineers*, contains recommended salary ranges based on multiples of starting salaries for the various ASCE professional grades. In accordance with the recommendations in Manual 55, many ASCE sections and branches conduct annual local salary surveys to establish a current base entrance salary along with adjustment indices for their areas to use with the Manual 55 salary curves. This listing is not intended to be complete, but does serve to illustrate other sources of salary information to compare with or supplement this report.

VI Acknowledgments

The number of employer responses and the corresponding large sample of employees represented in this report is due in part to the efforts of the ASCE sections and branches throughout the country to improve the mailing lists for their particular states. Their work is vital to the success of the Survey.

The Committee on Employment Conditions is grateful to all who supplied the basic data that made this report possible. The continued heavy demand for copies of ASCE salary surveys is evidence of the usefulness of these periodic analyses to civil engineering employers and employees alike. We are pleased to be able to help with this worthwhile

member service and will appreciate suggestions and comments for improvements in future surveys.

Respectfully submitted,
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TABLE 9.—Regional Response Chart

Employment Category (1)	Regions I		II		III		IV		V		VI		VII	
	O (2)	I (3)	O (4)	I (5)	O (6)	I (7)	O (8)	I (9)	O (10)	I (11)	O (12)	I (13)	O (14)	I (15)
Consulting	20	922	38	1,044	74	2,452	49	681	52	1,063	66	681	1	12
Construction	1	1	4	62	5	35	2	48	2	4	3	26	0	0
Design/construct	0	0	4	258	6	70	3	87	0	0	3	39	0	0
Railroads, utilities, industries	3	327	5	1,456	8	3,218	13	1,972	6	1,775	10	5,463	1	6
State government departments and agencies	6	40	7	163	43	587	11	188	12	228	44	526	0	0
Municipalities, counties, regional authorities	1	0	2	13	6	86	0	0	3	9	5	568	0	0
Education 9-month contract	4	85	5	96	8	114	6	9,116	4	99	8	157	0	0
Education 12-month contract	0	0	1	6	2	69	2	30	4	613	1	30	0	0
Total organizations	35		66		152		86		83		140		2	
Total individuals		1,375		3,098		6,631		12,122		3,791		7,480		18

O = Organizations; I = Individuals

Appendix I.—Tables and Figures

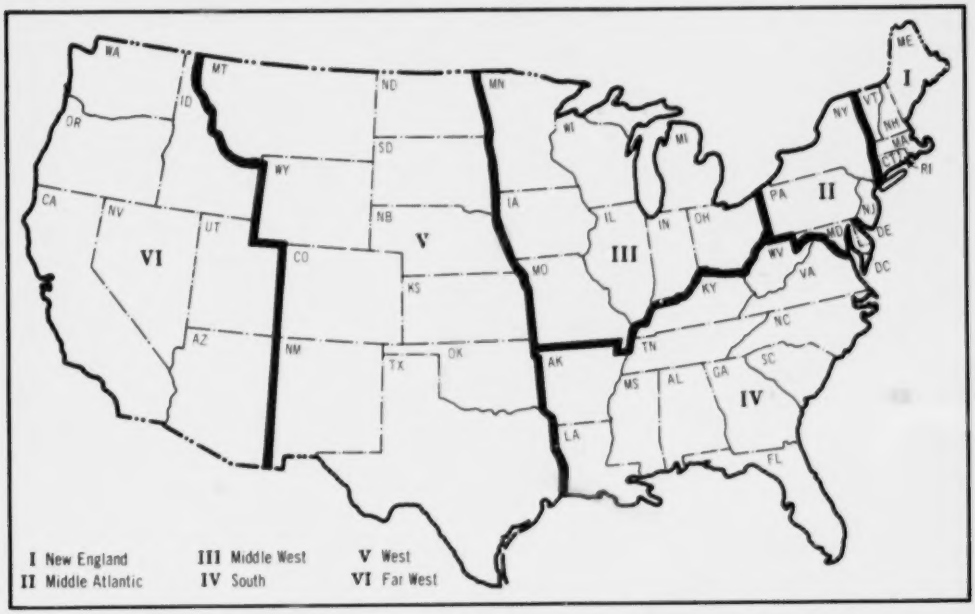

FIG. 1.—Map of Regions used for Comparative Purposes in this Study

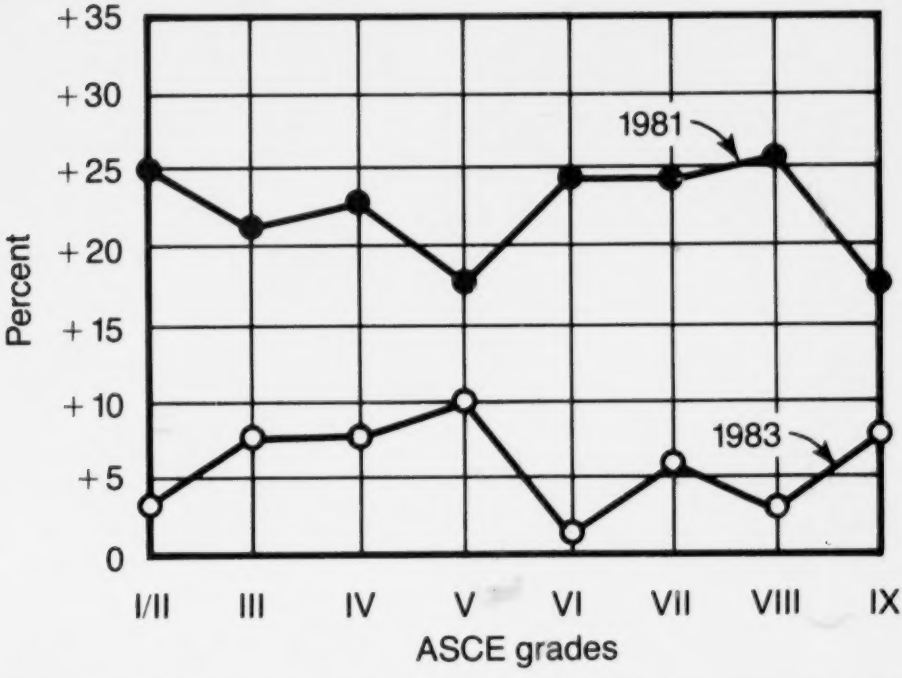

FIG. 2.—Change in Entrance Salary Medians for Combined Employment Categories, 1981–1983

TABLE 10.—Regional Relationships (Ratio of Regional to National Entrance Salary Medians for Combined Employment Categories[a] in Each ASCE Grade)

Region (1)	Grades I/II (2)	III (3)	IV (4)	V (5)	VI (6)	VII (7)	VIII (8)	IX (9)
Northeast (I)	18,000 0.94	18,974 0.84	24,000 0.92	27,457 0.89	29,848 0.89	30,050 0.79	38,500 0.91	42,016 0.84
Middle Atlantic (II)	18,000 0.94	22,000 0.98	26,000 1.00	30,000 1.01	34,930 1.04	40,000 1.05	42,132 1.00	50,903 1.02
Middle West (III)	19,800 1.03	22,048 0.98	25,400 0.98	29,200 0.97	32,448 0.97	36,400 0.96	41,600 0.99	48,000 0.96
Southern (IV)	18,278 0.95	21,600 0.96	26,000 1.00	27,997 0.95	57,200 1.71	35,776 0.94	40,000 0.95	54,932 1.10
Plains (V)	20,000 1.04	23,000 1.02	26,000 1.00	31,008 1.05	33,950 1.01	42,000 1.11	42.766 1.01	48,000 0.96
Western (VI)	19,500 1.01	23,280 1.03	26,712 1.03	30,240 1.02	35,000 1.04	39,600 1.04	45,600 1.08	54,539 1.09
Foreign (VII)	18,000 0.94	23,160 1.03	21,180 0.82	30,600 1.03	25,482 0.76	31,152 0.82	35,898 0.85	74,400 1.49
Overall Median dollars	19,237	22,500	26,000	29,616	33,509	38,000	42,152	50,000

[a]The eight employment categories outlined elsewhere in the report are combined for each Grade in each region.
Note: All medians shown are expressed in annual dollars.
The formula of ratio is overall, in dollars divided into regional median, in dollars equals quotient in decimal.

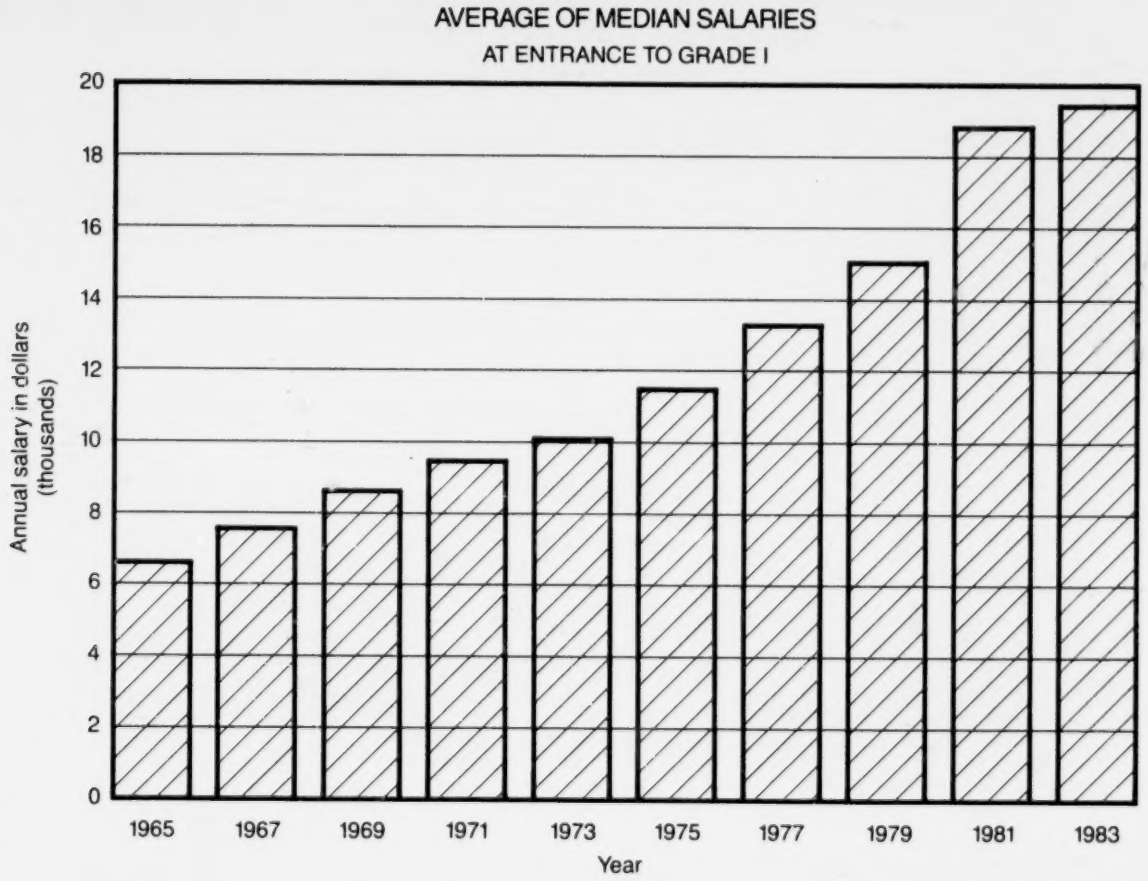

FIG. 3.—Comparison of Starting Salaries for New Graduates (Grade 1/II), 1965–1983

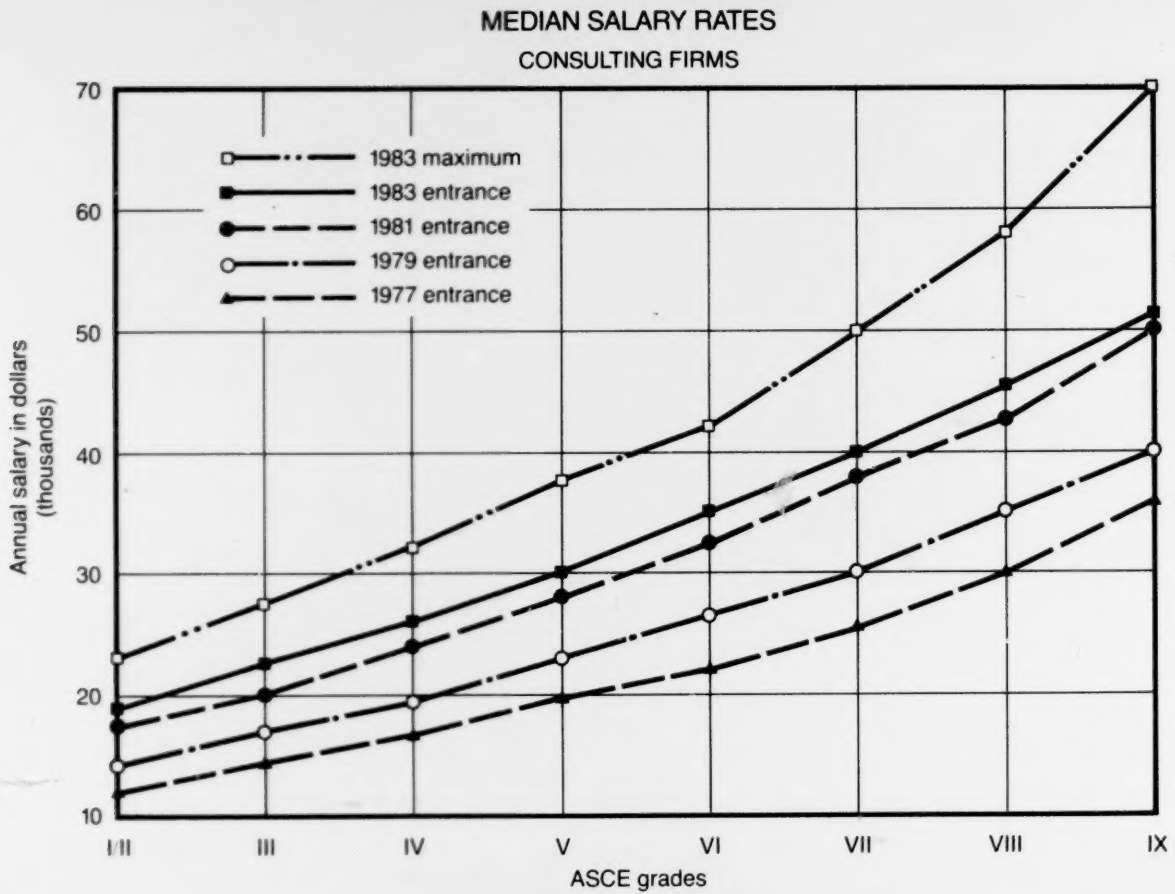

FIG. 4.—Median Salary Rates: Consulting Firms

TABLE 11.—Consulting Firms—Annual Salaries, in Dollars

ASCE grade (1)	Number of individuals (2)	ENTRANCE RATES							MAXIMUM RATES						
		Average salary (3)	Median salary (4)	Change from 1981–1983 as a percentage (5)	Middle 50% Range		Total Range		Average salary (10)	Median salary (11)	Change from 1981–1983 as a percentage (12)	Middle 50% Range		Total Range	
					Low (6)	High (7)	Low (8)	High (9)				Low (13)	High (14)	Low (15)	High (16)
I–II	1,250	19,656	18,660	+ 6.6	16,980	20,000	10,000	36,000	24,779	23,000	+ 7.9	20,530	25,220	10,000	65,000
III	1,119	23,441	22,560	+ 12.8	20,000	24,000	21,480	31,990	27,822	27,478	+ 14.5	24,000	30,360	12,480	38,584
IV	1,169	25,639	26,000	+ 8.3	23,500	28,200	12,000	34,560	31,797	32,000	+ 10.3	27,040	35,360	16,224	65,520
V	1,074	30,319	30,000	+ 7.2	27,000	34,590	15,000	43,080	38,348	37,470	+ 10.5	33,030	42,000	22,000	62,400
VI	984	34,245	35,000	+ 8.0	30,000	38,900	15,000	57,200	42,173	42,000	+ 6.1	36,000	48,000	18,000	64,875
VII	704	40,238	40,000	+ 5.3	35,000	45,240	26,000	63,180	49,359	49,727	+ 10.5	40,976	57,100	24,230	100,000
VIII	314	49,923	45,360	+ 6.2	40,000	50,000	23,000	83,000	58,929	57,780	+ 13.3	50,000	67,500	12,000	100,000
IX	241	54,865	51,500	+ 3.0	43,264	61,210	24,000	99,120	78,429	70,000	+ 16.7	55,200	89,000	12,000	240,000
Average			33,635							42,432					

Note: The average of median entrance rates, for all grades, in 1981 was $31,578; the percentage change from 1981–1983 is 06.5%.

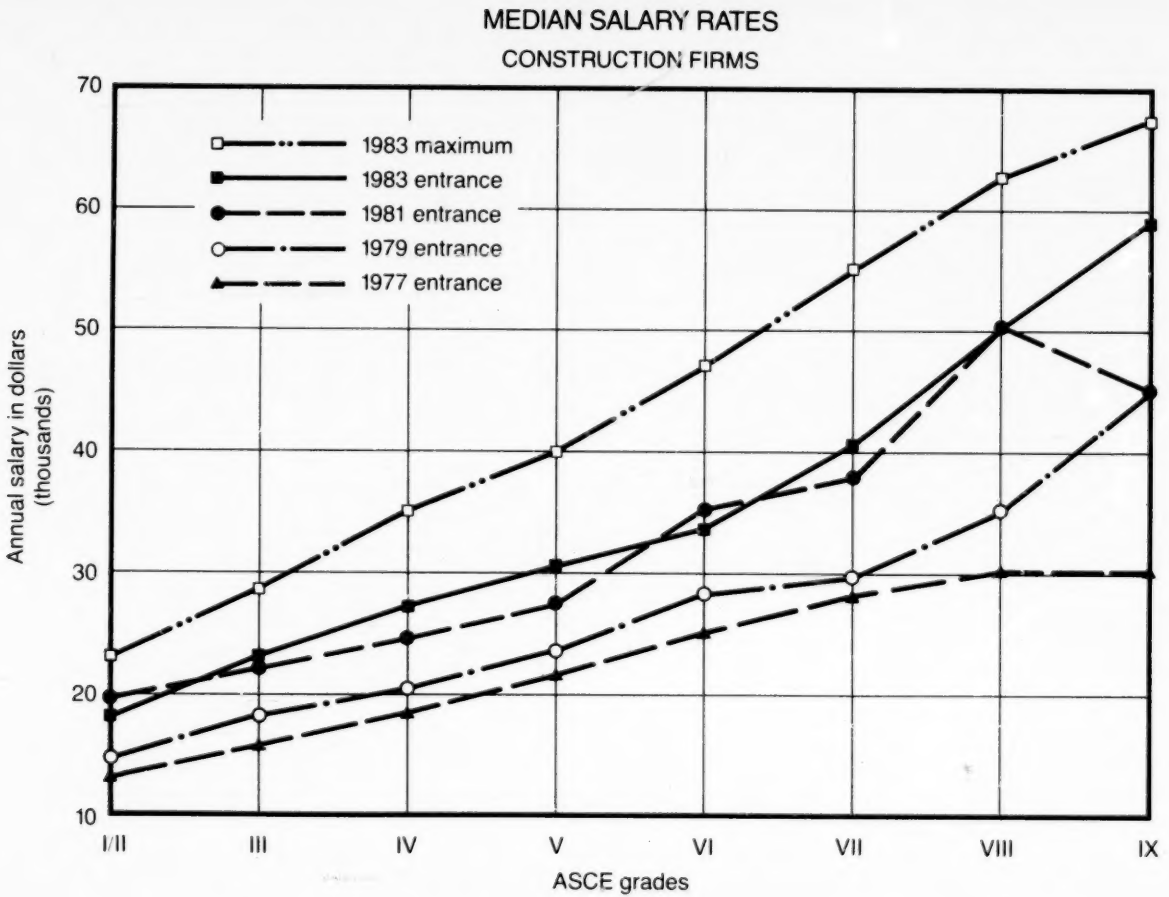

FIG. 5.—Median Salary Rates: Construction Firms

TABLE 12.—Construction Firms—Annual Salaries, in Dollars

ASCE grade (1)	Number of individuals (2)	ENTRANCE RATES							MAXIMUM RATES						
		Average salary (3)	Median salary (4)	Change from 1981–1983 as a percentage (5)	Middle 50% Range		Total Range		Average salary (10)	Median salary (11)	Change from 1981–1983 as a percentage (12)	Middle 50% Range		Total Range	
					Low (6)	High (7)	Low (8)	High (9)				Low (13)	High (14)	Low (15)	High (16)
I–II	12	18,504	18,000	– 7.4	15,000	21,000	13,837	24,000	23,230	23,000	+ 9.5	22,277	25,000	16,000	34,800
III	21	22,972	23,000	+ 4.5	20,900	25,000	16,000	28,800	28,118	28,500	+ 5.5	26,000	30,000	18,000	37,800
IV	50	27,135	27,183	+ 11.0	25,200	30,000	18,000	33,120	35,093	35,000	+ 20.7	30,000	38,000	25,000	48,240
V	29	31,455	30,402	+ 11.2	30,000	35,000	25,000	38,000	39,403	40,000	+ 11.1	39,519	45,000	30,000	53,820
VI	29	35,210	33,500	– 4.3	30,000	36,152	25,000	60,000	47,347	46,997	+ 17.5	38,000	50,000	33,000	80,000
VII	15	41,714	40,500	+ 7.3	38,000	42,700	35,000	52,800	52,497	55,000	+ 10.0	46,000	55,500	38,000	64,680
VIII	10	45,321	50,000	0	40,000	50,252	30,000	55,000	60,290	62,664	– 10.5	50,000	70,000	41,000	81,000
IX	10	54,987	58,938	+ 31.0	45,000	60,000	41,000	70,000	71,164	67,329	– 24.3	60,000	74,658	50,000	100,000
Average			35,190							44,811					

Note: The average of median entrance rates, for all grades, in 1981 was $32,630; the percentage change from 1981–1983 is 07.8%.

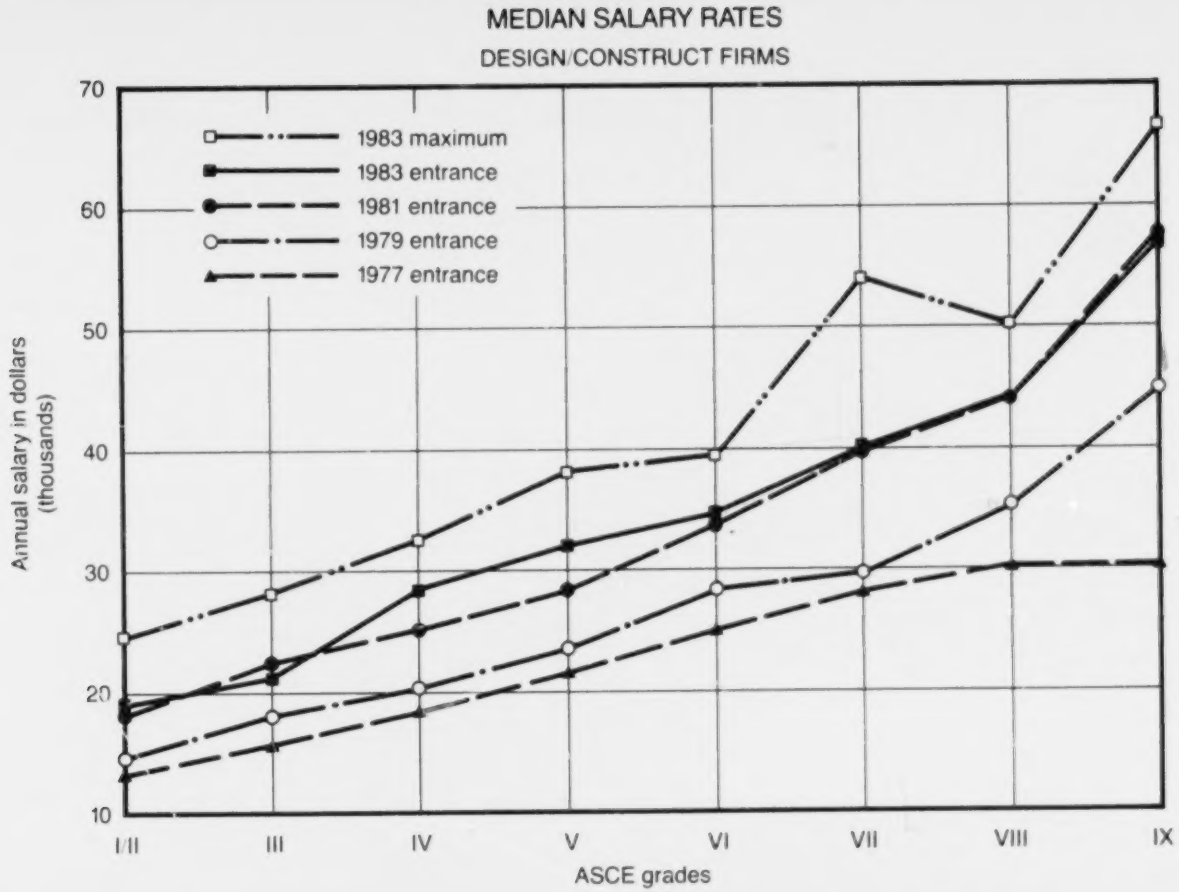

FIG. 6.—Median Salary Rates: Design/Construct Firms

TABLE 13.—Design/Construct Firms—Annual Salaries, in Dollars

ASCE grade (1)	Number of individuals (2)	ENTRANCE RATES							MAXIMUM RATES						
		Average salary (3)	Median salary (4)	Change from 1981–1983 as a percentage (5)	Middle 50% Range		Total Range		Average salary (10)	Median salary (11)	Change from 1981–1983 as a percentage (12)	Middle 50% Range		Total Range	
					Low (6)	High (7)	Low (8)	High (9)				Low (13)	High (14)	Low (15)	High (16)
I–II	86	18,199	18,900	+ 3.7	17,383	20,000	12,000	24,000	24,710	24,500	– 9.3	21,400	28,150	15,000	33,210
III	48	21,016	21,000	– 6.2	20,000	22,956	15,000	25,140	28,699	28,166	– 9.0	25,000	32,000	21,320	37,710
IV	65	27,145	28,440	+ 13.0	25,000	29,000	22,800	30,000	34,722	32,500	– 3.7	31,861	39,000	26,000	44,720
V	63	31,509	32,000	+ 11.7	29,374	33,500	23,000	42,300	40,106	38,185	– 7.2	35,000	42,000	27,000	63,000
VI	76	34,430	34,465	+ 2.6	28,000	37,720	24,000	46,700	43,734	39,501	+ 14.8	34,000	47,000	29,000	69,500
VII	59	38,998	40,000	+ 0.8	38,000	41,277	30,000	45,890	57,453	53,774	+ 3.4	49,999	68,770	48,000	70,290
VIII	24	46,014	44,277	+ 0.6	40,000	51,220	35,000	59,340	57,579	50,000	– 17.1	49,999	63,115	38,000	89,010
IX	23	55,330	56,945	– 0.8	48,000	60,600	45,000	70,000	71,150	66,498	– 19.5	60,000	75,000	52,000	98,000
Average			34,504							41,641					

Note: The average of median entrance rates, for all grades, in 1981 was $33,586; the percentage change from 1981–1983 is 02.7%.

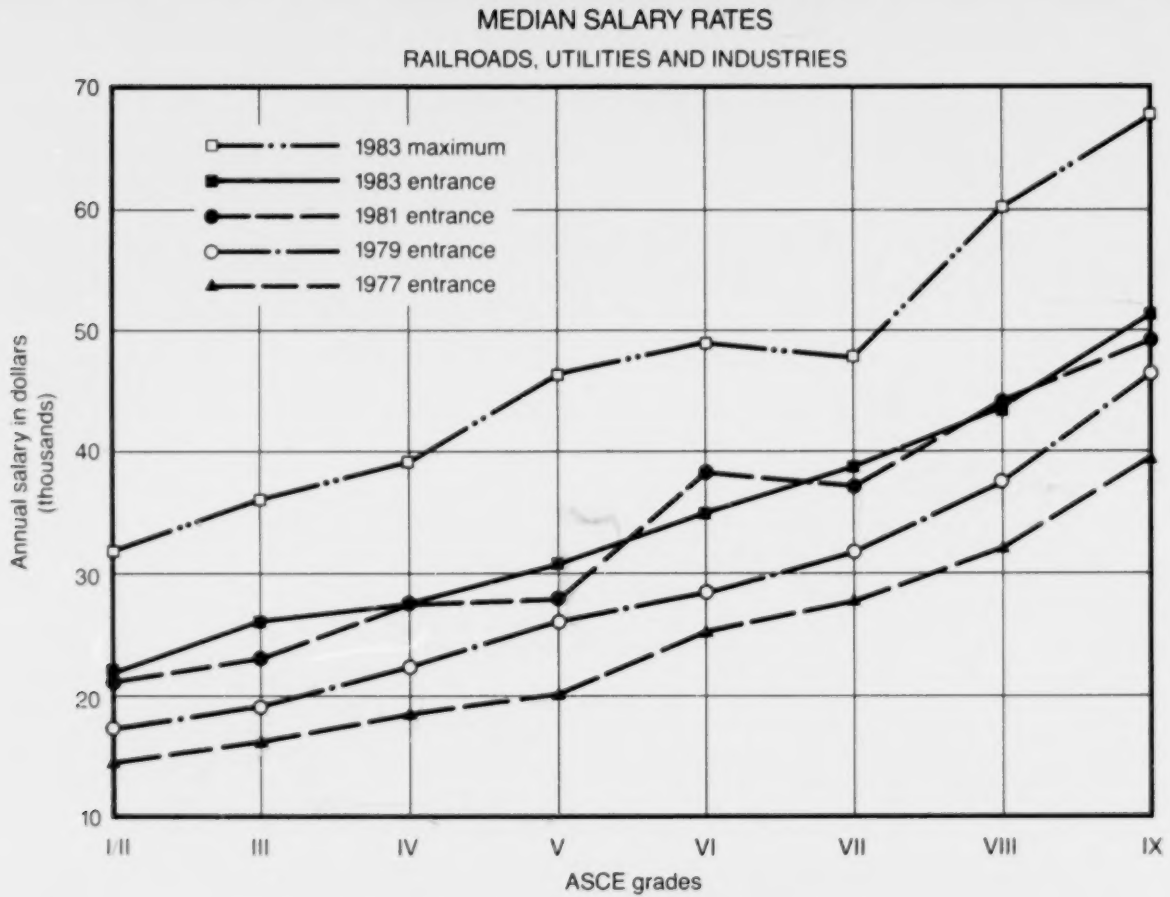

FIG. 7.—Median Salary Rates: Railroads, Utilities, Industries

TABLE 14.—Railroads, Utilities, and Industries—Annual Salaries, in Dollars

ASCE grade (1)	Number of individuals (2)	ENTRANCE RATES							MAXIMUM RATES						
		Average salary (3)	Median salary (4)	Change from 1981–1983 as a percentage (5)	Middle 50% Range		Total Range		Average salary (10)	Median salary (11)	Change from 1981–1983 as a percentage (12)	Middle 50% Range		Total Range	
					Low (6)	High (7)	Low (8)	High (9)				Low (13)	High (14)	Low (15)	High (16)
I–II	2,409	21,689	21,872	+ 3.1	20,400	23,050	15,000	30,000	30,251	31,896	+ 4.6	26,000	33,420	23,600	36,240
III	4,637	25,732	26,200	+ 13.6	24,000	26,559	17,500	34,740	34,747	36,108	+ 9.2	31,056	39,300	26,300	40,056
IV	3,420	28,515	27,696	+ 0.3	24,800	30,420	21,200	38,340	39,294	39,153	+ 10.1	34,312	44,232	30,100	48,480
V	1,898	32,562	30,744	+ 10.0	28,000	35,220	25,700	49,800	47,152	46,398	+ 9.1	38,500	54,000	32,200	75,000
VI	1,016	36,218	35,110	– 8.9	34,560	36,540	28,250	52,560	49,349	48,953	– 4.1	42,350	54,804	37,300	65,700
VII	573	38,068	38,800	+ 4.4	36,000	40,089	31,050	48,000	49,656	47,744	+ 4.6	46,600	52,000	38,800	60,768
VIII	220	42,863	43,800	+ 0.6	40,423	47,028	34,250	47,880	60,832	60,175	– 1.5	49,214	70,548	47,000	77,880
IX	44	51,426	51,426	+ 4.4	48,000	54,852	48,000	54,852	67,642	67,642	+ 5.1	53,000	82,284	53,000	82,284
Average			34,456							47,259					

Note: The average of median entrance rates, for all grades, in 1981 was $33,611; the percentage change from 1981–1983 is 02.5%.

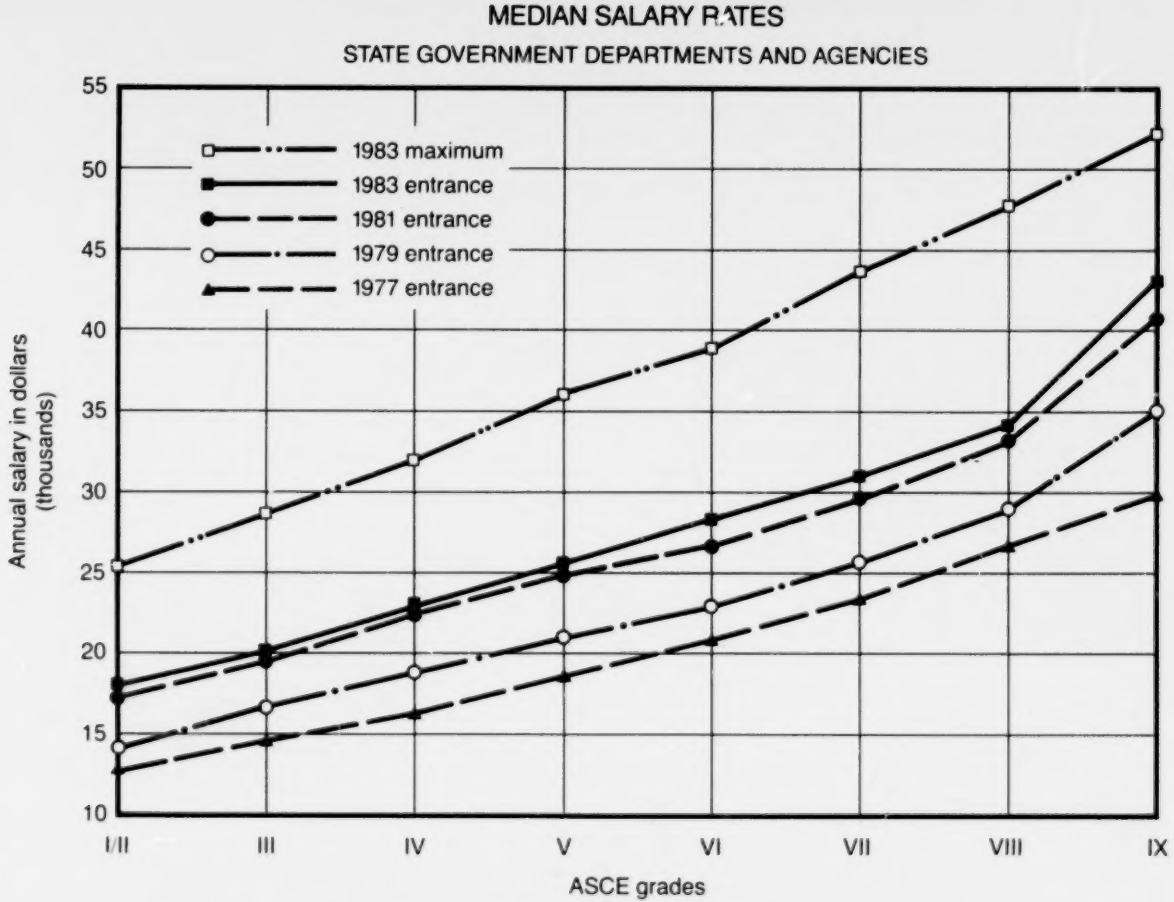

FIG. 8.—Median Salary Rates: State Government Departments and Agencies

TABLE 15.—State Government Departments and Agencies—Annual Salaries, in Dollars

ASCE grade (1)	Number of individuals (2)	ENTRANCE RATES							MAXIMUM RATES						
		Average salary (3)	Median salary (4)	Change from 1981–1983 as a percentage (5)	Middle 50% Range		Total Range		Average salary (10)	Median salary (11)	Change from 1981–1983 as a percentage (12)	Middle 50% Range		Total Range	
					Low (6)	High (7)	Low (8)	High (9)				Low (13)	High (14)	Low (15)	High (16)
I–II	309	18,336	18,042	+4.0	16,992	19,644	13,369	23,585	25,689	25,428	+2.7	23,491	28,000	16,756	36,900
III	400	20,576	20,142	+3.0	18,974	21,912	18,000	24,732	28,774	28,584	+6.5	26,331	31,681	19,851	41,000
IV	341	23,562	22,930	+2.1	21,723	25,200	15,720	36,000	32,132	31,861	+3.0	30,384	35,800	22,128	41,748
V	268	25,964	25,440	+2.2	23,530	27,997	21,881	34,930	35,704	36,000	+1.1	33,488	38,185	25,497	48,180
VI	205	28,581	28,336	+5.9	26,146	30,744	14,964	41,277	39,466	38,724	+1.1	36,996	43,836	24,720	53,661
VII	105	32,432	31,055	+4.9	28,650	34,176	20,064	48,553	45,023	43,563	+3.4	40,622	50,600	28,296	63,115
VIII	72	35,881	34,152	+3.0	31,809	40,956	22,116	51,996	47,702	47,587	+5.7	45,157	50,556	31,116	66,564
IX	32	43,828	43,116	+5.7	36,777	50,903	31,680	56,945	56,484	52,298	+4.9	50,292	64,800	37,313	86,000
Average			27,902							38,006					

Note: The average of median entrance rates, for all grades, in 1981 was $26,822; the percentage change from 1981–1983 is 04.0%.

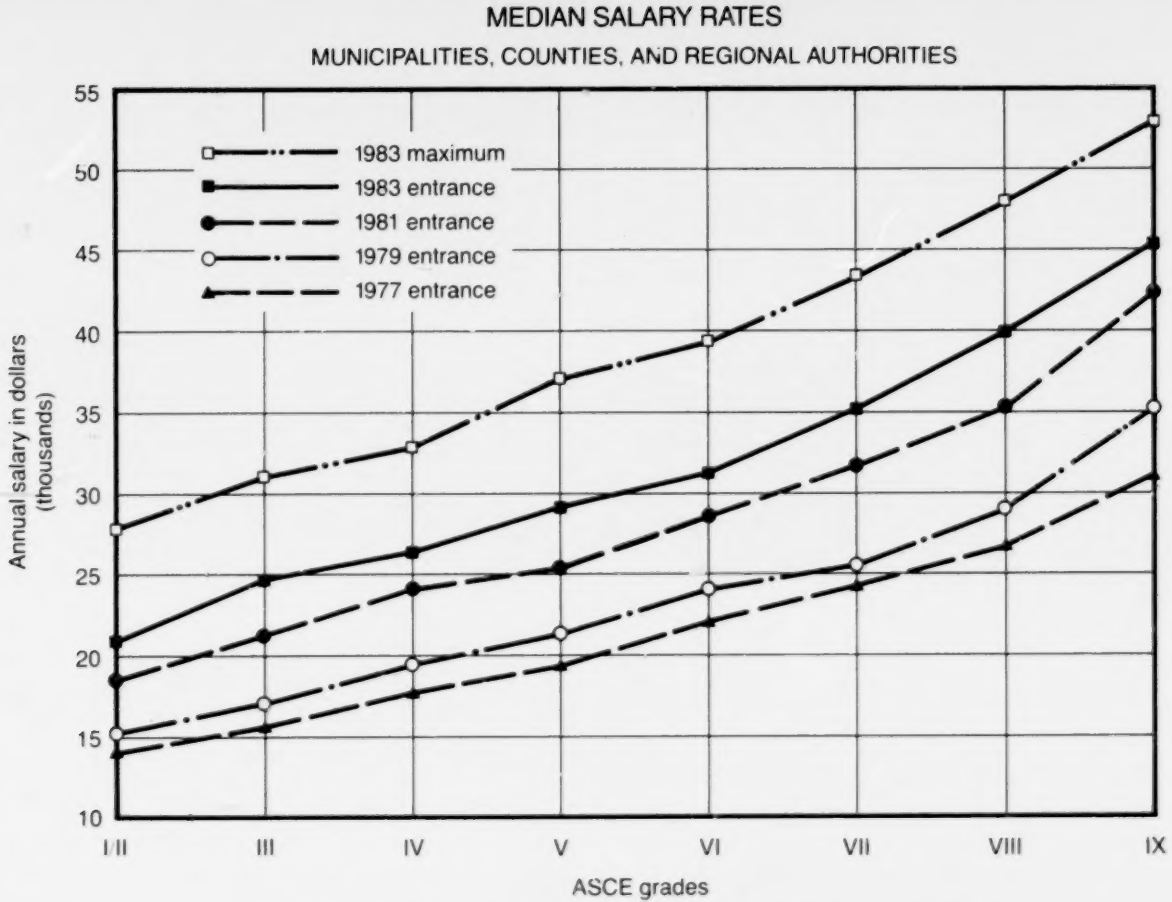

FIG. 9.—Median Salary Rates: Municipalities, Counties and Regional Authorities

TABLE 18.—Salaries of Engineers in Education, 1983[a]—Median Salary by Rank, Type of Institution, and Months on Contract

Title (1)	Engineering school PhD program, in dollars, (2)	Engineering school non-PhD program, in dollars (3)	Technical school, in dollars (4)
(1) 9–10 Month Contract			
Professor	40,250	36,200	32,100
Associate professor	31,550	28,600	27,750
Assistant professor	27,950	25,100	24,000
Instructor	20,800	20,850	21,300
Researcher	25,800	NA	NA
Administrator	46,100	38,850	30,750
(2) 11-12 Month Contract			
Professor	49,100	33,550	36,000
Associate professor	40,650	33,000	31,400
Assistant professor	35,350	30,350	26,250
Instructor	28,750	NA	24,900
Researcher	26,400	36,000	26,500
Administrator	52,600	44,050	37,800

[a]"Salaries of Engineers in Education, 1983" survey report of Engineering Manpower Commission of the American Association of Engineering Societies, Inc.

Note: These figures are *medians* of all salaries reported in 1983 EMC salary survey. In some cases the data above are based on a very small number of salaries reported. NA = Not Available; sample size too small.

TABLE 20.—Annual Federal Salary Rates

G.S. Grade (1)	1981 rate, Step 1, in dollars (2)	1983 rate, Step 1, in dollars (3)	Change, as a percentage (4)	ASCE Grade (5)
5	16,278[a]	17,383[a]	+6.8	I/II
7	20,170[a]	21,527[a]	+6.7	
9	23,371[a]	24,981[a]	+6.9	III
11	25,138[a]	26,959[a]	+7.2	IV
12	28,245	29,374	+4.0	V
13	33,586	34,930	+4.0	VI
14	39,389	41,277	+4.8	VII
15	46,685	48,553	+4.0	VIII
16	54,755	56,945	+4.0	IX
17	64,142[b]	66,708[b]	+4.0	IX
18	75,177[b]	78,184[b]	+4.0	IX

[a]Salary rates adjusted for professionals in 800 Engineering Series.

[b]Basic pay is limited by Section 5308 of Title 5 of the United States Code to rate for Level V of Executive Schedule.

TABLE 16.—Municipalities, Counties and Regional Authorities—Annual Salaries, in Dollars

ASCE grade (1)	Number of individuals (2)	ENTRANCE RATES							MAXIMUM RATES						
		Average salary (3)	Median salary (4)	Change from 1981–1983 as a percentage (5)	Middle 50% Range		Total Range		Average salary (10)	Median salary (11)	Change from 1981–1983 as a percentage (12)	Middle 50% Range		Total Range	
					Low (6)	High (7)	Low (8)	High (9)				Low (13)	High (14)	Low (15)	High (16)
I–II	51	20,934	20,976	+10.7	19,250	22,776	14,500	25,641	27,731	27,786	+14.9	25,000	29,508	20,000	56,086
III	128	24,359	24,696	+15.7	22,048	26,556	12,200	33,568	30,665	31,019	+15.5	28,584	32,796	16,900	47,378
IV	145	26,253	26,357	+ 9.2	23,500	29,088	12,960	40,695	33,008	32,820	+ 8.7	30,173	36,171	18,879	49,444
V	134	29,712	29,229	+15.7	27,456	31,743	17,919	40,933	36,972	37,130	+13.4	34,839	39,804	20,605	49,444
VI	148	31,105	31,272	+11.0	27,888	34,800	20,052	44,850	39,022	39,366	+ 8.8	34,500	43,172	23,000	54,518
VII	57	34,928	35,200	+12.7	31,800	38,320	18,180	51,928	43,652	43,440	+10.0	39,132	48,465	27,000	63,099
VIII	9	39,475	39,909	+14.7	33,120	45,322	19,140	60,082	48,962	48,000	+ 9.1	42,500	55,188	26,823	73,054
IX	3	44,247	45,374	+ 9.1	39,156	50,700	19,914	60,082	54,453	53,010	+ 2.4	45,309	64,278	26,976	77,762
Average			31,627							39,071					

Note: The average of median entrance rates, for all grades, in 1981 was $28,183; the percentage change from 1981–1983 is 12.2%.

TABLE 17.—Education—Annual Salaries, in Dollars

ASCE grade (1)	Number of individuals (2)	ENTRANCE RATES							MAXIMUM RATES						
		Average salary (3)	Median salary (4)	Change from 1981–1983 as a percentage (5)	Middle 50% Range		Total Range		Average salary (10)	Median salary (11)	Change from 1981–1983 as a percentage (12)	Middle 50% Range		Total Range	
					Low (6)	High (7)	Low (8)	High (9)				Low (13)	High (14)	Low (15)	High (16)
(1) 9–10 Month Contract[a]															
I–II	10	14,600	14,600	+38.8	10,000	19,200	10,000	19,200	18,000	18,000	– 5.0	18,000	18,000	18,000	18,000
III	32	17,687	16,706	+ 7.8	15,000	19,858	11,350	29,000	22,582	23,000	+ 15.0	20,568	25,000	16,900	29,553
IV	4,114	26,434	26,000	+18.2	23,300	29,500	16,872	38,000	31,467	32,000	+ 28.0	28,600	32,500	22,896	42,000
V	5,185	30,124	29,750	+21.3	27,225	32,500	21,300	41,600	36,806	35,000	+ 15.7	33,830	40,000	28,884	51,000
VI	231	35,289	35,000	+18.6	31,000	38,000	27,120	52,000	45,923	44,200	+ 16.3	40,635	50,144	31,300	68,000
VII	64	41,344	40,000	+11.7	33,026	51,483	28,000	59,000	51,132	51,500	+ 28.3	44,000	56,700	35,000	78,000
VIII	25	44,941	45,000	+12.5	37,000	50,128	34,860	57,700	56,108	56,170	+ 12.3	48,000	63,200	42,120	72,000
IX	6	47,844	46,510	+22.4	43,020	50,000	39,756	58,600	55,554	54,072	+ 8.1	50,000	58,144	48,072	66,000
Average			31,696							39,243					

(2) 11–12 Month Contract[b]

I–II	1	17,383	17,383	+93.1	17,383	17,383	17,383	17,383	26,495	26,495	+120.8	26,495	26,495	26,495	26,495
III	10	27,716	24,981	+33.9	22,200	33,400	22,000	36,000	31,317	31,056	+ 72.5	25,000	38,000	22,200	40,329
IV	50	30,070	29,333	+ 1.9	27,500	32,438	26,959	34,000	34,592	35,000	+ 3.4	34,312	36,667	28,900	40,000
V	69	33,244	34,000	+ 8.3	31,069	35,000	29,374	36,267	45,135	45,634	+ 22.7	40,500	50,300	33,500	56,000
VI	99	37,790	39,203	+ 3.6	35,500	40,000	28,500	46,400	54,569	57,410	+ 19.6	45,046	63,500	38,000	72,000
VII	27	51,753	48,400	+14.8	47,000	50,000	41,277	73,000	60,512	55,700	+ 23.8	53,661	66,350	48,250	79,000
VIII	3	53,426	53,427	+27.2	48,553	58,300	48,553	58,300	61,675	59,100	+ 25.7	58,300	59,900	57,500	71,000
IX	500	56,945	56,945	+47.9	56,945	56,945	56,945	56,945	73,750	73,750	+ 67.6	57,500	90,000	57,500	90,000
Average			37,959							48,018					

[a]Average of median entrance rates in 1981, for all grades, was $26,981; percentage change from 1981–1983 is 17.5%.
[b]Average of median entrance rates in 1981, for all grades, was $31,045; percent change from 1981–1983 is 22.3%.

TABLE 19.—Combined Grades Annual Salaries, by Employment Category—Annual Salaries, in Dollars

ASCE grade (1)	Number of individuals (2)	ENTRANCE RATES							MAXIMUM RATES						
		Average salary (3)	Median salary (4)	Change from 1981–1983 as a percentage (5)	Middle 50% Range		Total Range		Average salary (10)	Median salary (11)	Change from 1981–1983 as a percentage (12)	Middle 50% Range		Total Range	
					Low (6)	High (7)	Low (8)	High (9)				Low (13)	High (14)	Low (15)	High (16)
CONSU	6,855	29,602	29,544	+ 9.4	22,880	39,000	10,000	99,120	40,935	36,120	+ 6.7	27,920	48,000	10,000	240,000
CONST	176	32,767	30,000	+ 1.4	24,000	40,000	13,837	70,000	41,761	39,519	– 1.1	30,000	50,000	16,000	100,000
DES/C	444	33,927	30,000	+ 3.2	23,530	41,820	12,000	70,000	44,485	39,000	– 5.2	30,000	55,080	15,000	98,000
INDUS	14,217	27,385	25,512	+ 2.0	21,576	31,668	13,369	56,945	36,445	35,800	+ 1.4	28,872	42,191	16,756	86,000
STATE	1,732	30,278	28,824	+11.7	23,844	35,000	12,200	60,082	38,202	36,708	+10.3	30,654	43,992	16,900	77,762
MUNIC	675	31,631	30,240	+ 6.3	25,700	36,540	15,000	54,852	43,751	41,568	+ 2.7	35,400	51,350	23,600	82,284
09–10	9,667	31,200	30,276	+21.1	25,000	36,300	10,000	59,000	39,101	36,540	+11.1	31,500	45,000	16,900	78,000
11–12	258	37,364	35,000	+ 9.4	30,666	44,200	17,383	73,000	48,626	48,250	+23.7	37,000	58,300	22,200	90,000
Overall	34,024	30,480	33,500	+25.8	27,941	35,808	10,000	99,120	40,267	41,912	+23.1	35,295	47,946	10,000	240,000

TABLE 21.—Complete G.S. Schedule Effective October, 1982–January 1, 1984, in Dollars

Grade (1)	1 (2)	2 (3)	3 (4)	4 (5)	5 (6)	6 (7)	7 (8)	8 (9)	9 (10)	10 (11)
GS-5[a]	17,383	17,829	18,275	18,721	19,167	19,613	25,059	20,505	20,951	21,397
GS-7[a]	21,527	22,079	22,631	23,184	23,735	24,287	24,839	25,391	25,943	26,495
GS-9[a]	24,981	25,656	26,331	27,006	27,681	28,356	29,031	29,706	30,381	31,056
GS-11[a]	26,959	27,776	28,593	29,410	30,227	31,044	31,861	32,678	33,495	34,312
GS-12	29,374	30,353	31,332	32,311	33,290	34,269	35,248	36,227	37,206	38,185
GS-13	34,930	36,094	37,258	38,422	39,586	40,750	41,914	43,078	44,242	45,406
GS-14	41,277	42,653	44,029	45,405	46,781	48,157	49,533	50,909	52,285	53,661
GS-15	48,553	50,171	51,789	53,407	55,025	56,643	58,261[b]	59,879[b]	61,497[b]	63,115[b]
GS-16	56,945	58,843[b]	60,741[b]	62,639[b]	64,537[b]	66,435[b]	68,333[b]	70,231[b]	72,129[b]	—
GS-17	66,708[b]	68,932[b]	71,156[b]	73,380[b]	75,604[b]					
GS-18	78,184[b]									

[a]Salary rates adjusted for professionals in 800 Engineering Series.

[b]Basic pay is limited by Section 5308 of Title 5 of the U.S. Code to rate level V of Executive Schedule, which is, as of effective date of this schedule, $57,500.

Note: The majority of those previously in Grade 16 and above are now in Senior Executive Service (SES) and are under different pay schedule.

TABLE 22.—Grade I/II—Comparison of Median Salary by Region, in Dollars

	Consulting Firms		Construction Firms		Design Construct		Railroads, Utilities, and Industries		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Education 9–10 Months		Education 11–12 Months		Totals	
REG (1)	ENT (2)	MAX (3)	ENT (4)	MAX (5)	ENT (6)	MAX (7)	ENT (8)	MAX (9)	ENT (10)	MAX (11)	ENT (12)	MAX (13)	ENT (14)	MAX (15)	ENT (16)	MAX (17)	ENT (18)	MAX (19)
1	18,200	21,164	14,500	16,000	—	—	—	—	14,717	17,628	17,234	25,166	—	—	—	—	18,000	20,000
2	18,000	23,400	19,850	26,400	19,000	27,000	21,435	23,950	17,398	25,428	19,237	27,843	—	—	—	—	18,000	25,000
3	18,750	22,100	15,000	22,277	18,900	21,400	22,082	33,185	18,810	24,760	22,119	27,350	19,200	—	—	—	19,800	24,760
4	18,563	22,880	—	—	20,955	27,405	—	—	17,784	28,872	19,408	30,321	10,000	18,000	—	—	18,278	24,648
5	20,000	23,000	—	—	—	—	—	23,600	21,498	27,183	19,630	28,104	—	—	17,383	26,495	20,000	25,000
6	18,000	23,340	22,500	24,000	14,692	18,264	18,892	28,848	17,988	23,100	22,057	26,851	—	—	—	—	19,500	24,636
7	18,000	31,650	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18,000	31,650

TABLE 23.—Grade III—Comparison of Median Salary by Region, in Dollars

	Consulting Firms		Construction Firms		Design Construct		Railroads, Utilities, and Industries		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Education 9–10 Months		Education 11–12 Months		Totals	
REG (1)	ENT (2)	MAX (3)	ENT (4)	MAX (5)	ENT (6)	MAX (7)	ENT (8)	MAX (9)	ENT (10)	MAX (11)	ENT (12)	MAX (13)	ENT (14)	MAX (15)	ENT (16)	MAX (17)	ENT (18)	MAX (19)
1	21,000	25,000	—	—	—	—	—	—	18,974	21,733	17,566	25,412	15,750	20,000	—	—	18,974	23,000
2	22,048	28,215	20,000	28,000	22,000	32,000	22,826	26,300	20,371	29,066	23,290	33,500	19,858	27,277	—	—	22,000	28,600
3	22,000	25,200	24,000	28,628	20,000	25,000	26,200	39,300	20,639	28,322	23,159	29,090	17,500	22,723	22,200	22,200	22,048	27,622
4	22,000	26,500	21,450	28,600	21,515	28,275	—	—	22,656	29,952	24,450	33,246	15,300	24,000	30,491	34,528	21,600	27,456
5	23,000	28,000	—	—	—	—	—	—	22,656	29,952	24,450	33,246	15,300	24,000	30,491	34,528	23,000	28,600
6	22,800	28,040	26,000	29,000	18,978	24,166	25,770	33,872	20,100	27,132	51,176	31,000	17,412	20,718	22,000	25,000	23,280	29,000
7	23,160	36,120	—	—	—	—	—	—	—	—	—	—	—	—	—	—	23,160	36,120

TABLE 24.—Grade IV—Comparison of Median Salary by Region, in Dollars

	Consulting Firms		Construction Firms		Design Construct		Railroads, Utilities, and Industries		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Education 9–10 Months		Education 11–12 Months		Totals	
REG (1)	ENT (2)	MAX (3)	ENT (4)	MAX (5)	ENT (6)	MAX (7)	ENT (8)	MAX (9)	ENT (10)	MAX (11)	ENT (12)	MAX (13)	ENT (14)	MAX (15)	ENT (16)	MAX (17)	ENT (18)	MAX (19)
1	24,000	31,000	—	—	—	—	—	—	21,723	23,577	22,386	27,236	28,750	32,000	—	—	24,000	30,000
2	25,584	34,000	25,560	36,620	29,000	39,000	28,495	31,800	26,602	33,193	22,692	30,173	—	28,900	—	—	26,000	33,800
3	25,100	28,000	27,683	33,990	24,000	32,000	28,596	42,900	23,110	30,966	25,776	32,833	23,500	28,363	29,969	34,684	25,400	31,616
4	26,000	30,552	25,200	37,800	29,000	32,500	—	—	21,276	36,296	26,976	29,357	27,000	32,000	32,083	36,500	26,000	32,240
5	26,000	33,100	23,400	40,820	—	—	24,000	30,100	25,452	33,996	26,052	32,364	28,150	33,800	27,500	34,312	26,000	33,936
6	27,360	31,600	31,000	30,000	25,980	29,931	29,161	39,153	23,990	31,831	28,480	33,418	24,500	30,900	28,000	35,000	26,712	32,208
7	26,640	41,520	—	—	—	—	—	—	15,720	22,128	—	—	—	—	—	—	21,180	31,824

TABLE 25.—Grade V—Comparison of Median Salary by Region, in Dollars

	Consulting Firms		Construction Firms		Design Construct		Railroads, Utilities, and Industries		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Education 9–10 Months		Education 11–12 Months		Totals	
REG (1)	ENT (2)	MAX (3)	ENT (4)	MAX (5)	ENT (6)	MAX (7)	ENT (8)	MAX (9)	ENT (10)	MAX (11)	ENT (12)	MAX (13)	ENT (14)	MAX (15)	ENT (16)	MAX (17)	ENT (18)	MAX (19)
1	26,457	38,772	—	—	—	—	—	—	24,491	26,150	24,884	33,403	30,900	34,000	—	—	26,457	34,000
2	30,000	39,500	18,600	41,910	32,230	45,345	25,700	38,500	31,805	39,257	26,915	36,873	—	—	—	—	30,000	39,257
3	28,918	34,944	30,402	40,000	30,000	35,500	32,124	48,336	24,476	33,873	29,667	36,699	28,113	33,600	31,069	50,187	29,200	35,000
4	29,328	35,000	28,750	37,850	33,500	38,500	—	—	22,940	37,795	25,441	34,719	28,050	36,511	35,634	45,634	27,997	36,190
5	33,000	39,360	—	—	—	—	27,500	32,200	28,032	36,228	30,402	40,644	30,300	35,000	31,000	38,185	31,008	38,232
6	33,380	40,000	34,000	40,000	29,374	32,593	33,620	49,950	26,500	36,000	29,386	36,588	30,750	34,650	34,000	40,500	30,240	37,260
7	30,600	47,880	—	—	—	—	—	—	—	—	—	—	—	—	—	—	30,600	47,880

TABLE 26.—Grade VI—Comparison of Median Salary by Region, in Dollars

	Consulting Firms		Construction Firms		Design Construct		Railroads, Utilities, and Industries		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Education 9–10 Months		Education 11–12 Months		Totals	
REG (1)	ENT (2)	MAX (3)	ENT (4)	MAX (5)	ENT (6)	MAX (7)	ENT (8)	MAX (9)	ENT (10)	MAX (11)	ENT (12)	MAX (13)	ENT (14)	MAX (15)	ENT (16)	MAX (17)	ENT (18)	MAX (19)
1	29,924	38,000	25,000	50,000	—	—	—	—	27,378	28,743	28,496	33,277	35,000	44,000	—	—	29,848	37,890
2	34,930	43,420	30,000	40,000	37,360	51,040	28,250	42,350	36,069	44,577	30,173	40,800	—	41,200	—	—	34,930	44,000
3	32,000	38,688	34,000	42,499	34,000	34,000	35,262	53,886	26,770	36,937	31,941	39,384	35,450	44,200	39,203	60,475	32,448	39,000
4	35,000	41,300	32,750	44,150	34,475	50,496	—	—	25,367	41,188	22,622	30,746	30,000	42,000	43,200	57,734	57,200	41,600
5	34,850	45,000	—	—	—	—	35,000	38,200	29,952	38,724	29,208	39,228	36,110	44,300	34,930	45,046	33,950	42,500
6	36,120	44,400	50,000	48,000	34,930	37,703	35,912	48,954	29,460	41,640	33,900	40,449	30,500	41,736	35,500	58,500	35,000	42,348
7	36,000	56,280	—	—	—	—	—	—	14,964	24,360	—	—	—	—	—	—	25,482	29,170

TABLE 27.—Grade VII—Comparison of Median Salary by Region, in Dollars

REG (1)	Consulting Firms		Construction Firms		Design Construct		Railroads, Utilities, and Industries		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Education 9–10 Months		Education 11–12 Months		Totals	
	ENT (2)	MAX (3)	ENT (4)	MAX (5)	ENT (6)	MAX (7)	ENT (8)	MAX (9)	ENT (10)	MAX (11)	ENT (12)	MAX (13)	ENT (14)	MAX (15)	ENT (16)	MAX (17)	ENT (18)	MAX (19)
1	30,000	47,694	—	—	—	—	—	—	28,161	30,647	37,844	57,870	40,000	—	—	—	30,050	47,694
2	40,190	50,200	43,900	54,840	40,910	59,145	31,050	46,750	40,629	55,916	33,196	44,246	44,200	54,600	—	—	40,000	50,000
3	37,950	45,000	38,850	55,250	34,000	54,000	36,000	46,600	29,942	41,704	36,950	44,045	41,850	45,600	58,400	65,300	36,400	45,000
4	36,070	48,302	39,250	53,400	40,945	59,385	—	—	28,464	43,686	26,665	42,351	36,921	44,401	48,400	61,400	35,776	47,994
5	44,500	53,250	—	—	—	—	43,000	47,800	32,406	41,836	33,302	43,308	46,500	53,500	47,000	53,661	42,000	52,000
6	42,000	50,000	48,000	46,500	41,277	53,661	39,845	54,369	34,044	43,740	35,760	43,284	33,026	42,936	50,000	55,700	39,600	47,341
7	42,240	66,000	—	—	—	—	—	—	20,064	28,296	—	—	—	—	—	—	31,152	47,148

TABLE 28.—Grade VIII—Comparison of Median Salary by Region, in Dollars

	Consulting Firms		Construction Firms		Design Construct		Railroads, Utilities, and Industries		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Education 9–10 Months		Education 11–12 Months		Totals	
REG (1)	ENT (2)	MAX (3)	ENT (4)	MAX (5)	ENT (6)	MAX (7)	ENT (8)	MAX (9)	ENT (10)	MAX (11)	ENT (12)	MAX (13)	ENT (14)	MAX (15)	ENT (16)	MAX (17)	ENT (18)	MAX (19)
1	39,250	60,965	—	—	—	—	—	—	31,783	34,588	42,325	42,500	45,000	—	—	—	38,500	60,000
2	45,000	57,500	35,000	55,000	40,000	50,000	34,250	51,350	42,005	52.316	40,441	51,181	—	59,900	—	—	42,132	55,000
3	41,600	51,900	44,126	65,327	44,500	50,500	47,028	70,548	33,240	45,157	41,544	50,082	47,500	64,250	—	71,000	41,600	50,488
4	42,900	57,890	52,000	75,500	45,610	63,545	—	—	32,898	47,269	30,000	45,456	43,564	49,320	—	—	40,000	53,000
5	49,680	55,698	—	45,000	—	—	—	—	37,540	45,200	37,212	46,536	—	47,000	53,427	57,900	42,766	52,000
6	51,000	62,400	55,000	55,500	48,553	50,558	43,012	59,107	41,298	53,136	38,250	48,086	46,280	63,200	—	—	45,600	56,640
7	22,116	31,116	—	—	—	—	—	—	22,116	31,116	—	—	—	—	—	—	35,898	62,058

TABLE 31.—Engineers' Nonsalary Benefits, 1983—

Benefits (1)	Consulting Firms			Construction Firms			Design Construct			State Departments and Agencies		
	Number			Number			Number			Number		
	A (2)	B (3)	% (4)	A (5)	B (6)	% (7)	A (8)	B (9)	% (10)	A (11)	B (12)	% (13)
Vacation	6	282	4.63	1	16	4.44	2	12	5.47	14	109	5.85
Holidays	8	279	2.97	3	14	3.03	2	12	3.15	12	111	3.95
Sick leave	15	261	2.44	4	11	2.55	2	11	2.95	16	105	4.44
Military leave	78	90	0.79	8	5	0.59	5	4	1.05	54	41	3.40
Incentive compensation	19	158	7.67	1	7	1.63	2	3	2.66	9	11	3.51
Retirement income	16	169	6.39	4	6	8.28	4	8	10.3	12	92	9.93
Social security	22	261	8.97	2	13	14.7	4	12	11.7	21	95	7.38
Professional dues	55	214	1.38	4	11	0.93	3	8	2.46	30	52	1.17
Insurance—medical	15	268	4.23	2	13	5.25	3	12	2.80	21	101	7.58
Insurance—life	31	222	1.59	1	13	1.61	5	6	1.83	28	76	1.57
Education	57	154	1.01	5	7	0.63	3	5	1.52	38	34	1.14
Separation allowance	62	31	2.43	4	3	2.45	5	3	1.07	14	5	3.00
Other	64	122	3.41	3	10	6.23	3	4	1.45	41	39	3.92
Average of overall	—		33.0	—		39.5	—		28.2	—		36.5

A = Employers indicating benefit is given without showing percentage (not available). B = Employers indicating benefit with

Average Cost, as a Percentage of Base Payroll

Municipalities and Counties			Railroads, Utilities and Industries			Education 11–12 Months			Total Average		
Number			Number			Number			Number		
A (14)	B (15)	% (16)	A (17)	B (18)	% (19)	A (20)	B (21)	% (22)	A (23)	B (24)	% (25)
4	11	5.91	5	40	6.88	3	7	6.67	35	477	5.17
4	11	3.33	5	40	4.13	2	7	3.04	36	474	3.32
6	9	3.86	5	40	4.31	1	8	3.96	49	445	3.15
11	2	1.00	19	23	2.00	8	1	0.03	183	166	1.60
5	4	7.92	7	4	3.51	1	1	5.00	44	188	7.55
7	6	12.0	4	37	10.6	1	8	7.13	48	327	8.13
8	6	7.06	6	36	6.41	1	6	5.90	64	429	8.59
6	5	0.55	11	2	1.55	2	3	1.33	111	295	1.34
6	9	5.50	10	35	5.73	4	5	3.08	61	443	5.12
6	9	1.60	15	22	0.70	2	3	0.47	88	351	1.53
7	4	3.63	16	4	0.77	6	—	—	132	208	1.07
7	—	—	6	—	—	1	—	—	99	42	2.40
7	3	4.33	17	3	2.50	4	—	—	139	181	3.63
—		22.2	—		33.2	—		21.3			34.3

percentage given

TABLE 33.—Familiarity with Manual 55 and

Answers (1)	Total (2)	Consulting Firms (3)	Construction Firms (4)	Design/ Construct (5)
(1) Are you familiar with ASCE Manual 55?				
Total	564 100.0%	300 100.0%	17 100.0%	16 100.0%
Yes	236 41.8%	161 53.7%	5 29.4%	4 25.0%
No	308 54.6%	128 42.7%	11 64.7%	11 68.7%
No answer	20 3.55%	11 3.66%	1 5.88%	1 6.25%
If yes, how do employment conditions in your organization compare with recommendations in each section of Manual 55?				
(2) Section 1 = Professional Employment				
Similar	151 64.0%	117 72.7%	3 60.0%	2 50.0%
Better	38 16.1%	23 14.3%	1 20.0%	1 25.0%
Not as good	28 11.9%	12 8.07%	1 20.0%	1 25.0%
No opinion	19 8.05%	8 4.97%	0	0 0.0%

Comparison of Conditions in Organizations with Manual 55

State Departments and Agencies (6)	Municipalities, Counties, and Regional Authorities (7)	Railroads, Utilities, and Industries (8)	Education	
			9–10 Month contracts (9)	11–12 Month contracts (10)
123 100.0%	17 100.0%	46 100.0%	35 100.0%	10 100.0%
36 29.2%	4 23.5%	7 15.2%	15 42.8%	4 40.0%
84 68.2%	13 76.4%	35 76.0%	20 57.1%	6 60.0%
3 2.43%	0 0.0%	4 8.69%	0 0.0%	0 0.0%
17 47.2%	1 25.0%	1 14.3%	7 46.7%	3 75.0%
4 11.1%	2 50.0%	3 42.9%	4 26.7%	0 0.0%
9 25.0%	0 0.0%	2 28.6%	2 13.3%	0 0.0%
6 16.7%	1 25.0%	1 14.3%	2 13.3%	1 25.0%

TABLE 33.—

Answers (1)	Total (2)	Consulting Firms (3)	Construction Firms (4)	Design/ Construct (5)
(3) Section 3 = Recommended Salary ranges				
Similar	98 41.5%	79 49.1%	2 40.0%	2 50.0%
Better	25 10.6%	16 9.94%	1 20.0%	0 0.0%
Not as good	74 31.4%	42 26.1%	2 40.0%	2 50.0%
No opinion	39 16.5%	24 15.0%	0 0.0%	0 0.0%
(4) Section 4 = Recommended Benefits				
Similar	79 33.5%	52 32.3%	1 20.0%	1 25.0%
Better	46 19.5%	26 16.2%	2 40.0%	1 25.0%
Not as good	39 16.5%	26 16.2%	2 40.0%	2 50.0%
No opinion	73 31.0%	57 35.4%	0 0.0%	0 0.0%

Continued

State Departments and Agencies (6)	Municipalities, Counties, and Regional Authorities (7)	Railroads, Utilities, and Industries (8)	Education	
			9–10 Month contracts (9)	11–12 Month contracts (10)
11 31.0%	1 25.0%	1 14.3%	0 0.0%	2 50.0%
3 8.33%	1 25.0%	2 28.6%	2 13.3%	0 0.0%
15 41.7%	1 25.0%	2 28.6%	9 60.0%	1 25.0%
7 19.4%	1 25.0%	2 28.6%	4 26.7%	1 25.0%
16 44.4%	0 0.0%	1 14.3%	5 33.3%	3 66.6%
8 22.2%	3 75.0%	3 42.9%	2 13.3%	0 0.0%
4 11.1%	0 0.0%	1 14.3%	4 26.7%	0 0.0%
8 22.2%	1 25.0%	2 28.6%	4 26.7%	1 33.3%

TABLE 29.—Grade IX—Comparison of Median Salary by Region, in Dollars

	Consulting Firms		Construction Firms		Design Construct		Railroads, Utilities, and Industries		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Education 9–10 Months		Education 11–12 Months		Totals	
REG (1)	ENT (2)	MAX (3)	ENT (4)	MAX (5)	ENT (6)	MAX (7)	ENT (8)	MAX (9)	ENT (10)	MAX (11)	ENT (12)	MAX (13)	ENT (14)	MAX (15)	ENT (16)	MAX (17)	ENT (18)	MAX (19)
1	45,000	77,500	—	—	—	—	—	—	34,627	37,972	—	—	—	—	—	—	42,016	75,000
2	56,250	80,000	46,000	60,000	50,000	57,500	—	—	51,400	77,356	43,521	58,569	—	—	—	—	50,903	68,712
3	50,000	60,000	49,969	74,658	54,300	82,600	54,852	82,284	35,880	51,234	46,126	55,312	—	—	—	—	48,000	60,000
4	57,080	80,000	60,000	100,000	57,590	66,498	—	—	50,556	50,556	37,423	43,000	50,000	50,000	—	—	54,932	69,552
5	47,000	60,000	—	—	—	—	48,000	53,000	45,816	50,400	40,848	54,115	—	—	56,945	73,750	48,000	60,000
6	56,300	72,000	70,000	70,000	56,945	62,750	—	—	42,599	61,088	42,804	46,655	49,178	57,036	—	—	54,539	65,500
7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	74,400	151,080

TABLE 30.—All Grades—Comparison of Median Salary by Region, in Dollars

	Consulting Firms		Construction Firms		Design Construct		Railroads, Utilities, and Industries		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Education 9–10 Months		Education 11–12 Months		Totals	
REG (1)	ENT (2)	MAX (3)	ENT (4)	MAX (5)	ENT (6)	MAX (7)	ENT (8)	MAX (9)	ENT (10)	MAX (11)	ENT (12)	MAX (13)	ENT (14)	MAX (15)	ENT (16)	MAX (17)	ENT (18)	MAX (19)
1	30,000	40,000	19,750	33,000	—	—	27,378	28,743	24,883	33,403	—	—	35,000	34,000	—	—	29,848	37,890
2	34,930	44,200	31,100	41,910	37,360	50,000	36,069	44,577	30,173	40,800	28,250	38,500	39,000	55,600	44,200	54,600	34,930	44,000
3	32,000	38,688	34,000	42,498	34,000	36,000	26,770	36,996	36,950	38,521	35,304	49,776	29,000	44,200	31,069	60,455	32,448	39,000
4	35,000	41,600	32,750	44,150	34,475	50,495	26,146	43,686	26,976	37,859	—	—	30,500	42,000	35,633	45,633	35,776	41,600
5	34,700	45,000	23,400	42,910	—	—	29,952	38,724	30,804	40,644	35,000	38,200	31,600	44,600	34,930	45,046	33,950	42,500
6	36,120	40,000	48,000	48,000	34,930	37,703	29,460	41,640	33,900	41,393	37,000	54,000	32,500	41,736	34,000	40,500	35,000	42,348
7	36,000	56,280	—	—	—	—	20,064	28,296	—	—	—	—	—	—	—	—	30,600	47,148

TABLE 32.—Average Typical Annual Incentive Benefits

	Consulting Firms		Construction Firms		Design Construct		Railroads, Utilities, and Industries		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Education 9–10 Months		Education 11–12 Months		Totals	
ASCE Grade (1)	Dollars (2)	Number of individuals (3)	Dollars (4)	Number of individuals (5)	Dollars (6)	Number of individuals (7)	Dollars (8)	Number of individuals (9)	Dollars (10)	Number of individuals (11)	Dollars (12)	Number of individuals (13)	Dollars (14)	Number of individuals (15)	Dollars (16)	Number of individuals (17)	Dollars (18)	Number of individuals (19)
I/II	2,234	1,250	1,650	12	415	86	—	2,409	1,663	309	—	51	—	10	—	—	2,181	4,127
III	3,126	1,119	3,235	21	430	48	—	4,637	3,455	400	—	128	—	32	—	10	3,690	6,395
IV	4,028	1,169	5,833	50	1,758	65	13,175	3,420	4,447	341	4,000	145	—	4,114	—	50	4,795	9,354
V	5,430	1,074	10,850	29	2,375	63	—	1,898	1,531	268	6,050	134	3,000	5,185	—	69	5,504	8,720
VI	8,015	984	9,807	29	2,967	76	12,458	1,016	3,773	205	1,800	148	4,000	231	—	99	7,727	2,788
VII	11,007	704	10,500	15	3,783	59	11,152	573	2,659	105	23,300	57	—	64	—	27	11,105	1,605
VIII	15,541	314	9,820	10	6,900	24	13,937	220	5,192	72	—	9	—	25	—	3	14,069	677
IX	32,205	241	24,375	10	19,680	23	—	44	—	32	—	3	4,000	6	—	500	30,099	859

Table 34.—Use of Professional Grade Classifications

Answers (1)	Total (2)	Consulting Firms (3)	Construction Firms (4)	Design/ Construct (5)	State Departments and Agencies (6)	Municipalities, Counties, and Regional Authorities (7)	Railroads, Utilities, and Industries (8)	Education	
								9–10 Month contracts (9)	11–12 Month contracts (10)
(1) Have you come to an understanding with your employees on their grade classifications?									
Total	564 100.0%	300 100.0%	17 100.0%	16 100.0%	123 100.0%	17 100.0%	46 100.0%	35 100.0%	10 100.0%
Yes	269 47.7%	146 48.7%	8 47.0%	8 50.0%	61 49.6%	7 41.2%	24 52.2%	13 37.1%	2 20.0%
No	231 40.1%	127 42.3%	8 47.1%	5 31.3%	44 35.8%	10 58.8%	10 21.7%	21 60.0%	6 60.0%
No answer	64 11.3%	27 9.0%	1 5.88%	3 18.8%	18 14.6%	0 0.0%	12 26.1%	1 2.86%	2 20.0%
(2) Do you use the ASCE Grade Descriptions?									
Total	564 100.0%	300 100.0%	17 100.0%	16 100.0%	123 100.0%	17 100.0%	46 100.0%	35 100.0%	10 100.0%
Yes	126 22.3%	102 34.0%	4 23.5%	3 18.8%	9 7.32%	1 5.88%	3 6.52%	3 8.57%	1 10.0%
No	362 64.2%	163 54.3%	12 70.6%	10 62.5%	95 77.2%	15 88.2%	32 69.7%	28 80.0%	7 70.0%
No answer	76 13.5%	35 11.7%	1 5.88%	3 18.8%	19 15.4%	1 5.88%	11 23.9%	4 11.4%	2 20.0%

TABLE 35.—Educational Background of Employees

Category (1)	B.S. Degree (2)	Number of Employers (3)	M.S. Degree (4)	Number of Employers (5)	PhD Degree (6)	Number of Employers (7)
Consulting firms	3,549	261	2,348	207	268	56
Construction firms	81	15	13	6	0	0
Design/construct	183	15	125	9	36	5
Railroads, utilities and industries	3,475	29	422	24	130	7
State government departments and agencies	730	103	164	59	5	5
Municipalities, counties, and regional authorities	398	15	139	8	51	2
Education, 9–10 month contract	12	9	96	26	525	34
Education, 11–12 month contract	107	5	182	9	457	9
Total	8,535	452	3,489	348	1,472	118

TABLE 36.—Professional Registration

Category (1)	Number of P.E. (2)	Number of Employers (3)	Number of EITS (4)	Number of Employers (5)
Consulting firms	4,885	285	569	196
Construction firms	37	15	20	12
Design/construct	223	16	107	8
Railroads, utilities and industries	4,419	35	1,090	30
State government departments and agencies	862	112	191	79
Municipalities, counties, and regional authorities	218	15	15	11
Education, 9–10 month contract	383	33	92	23
Education, 11–12 month contract	390	9	7	5
Total	11,417	520	2,091	364

TABLE 37.—ASCE—Combined State Totals by

Region (1)	State name (2)	Number of consulting firms		Number of construction firms		Number of design/ construct		Number of railroads, utilities, and industries	
		Organization (3)	Individual (4)	Organization (5)	Individual (6)	Organization (7)	Individual (8)	Organization (9)	Individual (10)
1	Connecticut	3	45	1	1	0	0	0	0
1	Maine	4	52	0	0	0	0	0	0
1	Massachusetts	7	804	0	0	0	0	0	0
1	New Hampshire	3	10	0	0	0	0	2	241
1	Rhode Island	0	0	0	0	0	0	1	86
1	Vermont	2	6	0	0	0	0	0	0
1	Region totals	19	917	1	1	0	0	3	327
2	Delaware	0	0	0	0	0	0	2	4
2	District of Columbia	2	23	0	0	0	0	1	0
2	Maryland	5	39	0	0	1	22	0	0
2	New Jersey	6	101	2	58	2	250	1	75
2	New York	21	504	2	4	2	8	0	0
2	Pennsylvania	6	390	0	0	0	0	1	577
2	Region totals	40	1,057	4	62	5	280	5	1,456
3	Illinois	13	888	3	29	3	55	1	1,096
3	Indiana	7	36	0	0	1	1	0	0
3	Iowa	3	73	0	0	0	0	1	181
3	Michigan	15	75	1	3	2	14	3	711
3	Minnesota	6	71	0	0	0	0	0	0
3	Missouri	7	793	1	3	0	0	1	809
3	Ohio	14	435	0	0	0	0	2	421
3	Wisconsin	8	73	0	0	0	0	0	0
3	Region totals	73	2,444	5	35	6	70	8	3,218
4	Alabama	2	33	0	0	0	0	0	0
4	Arkansas	3	14	0	0	0	0	3	223
4	Florida	6	123	0	0	0	0	2	69
4	Georgia	0	0	0	0	0	0	0	0
4	Kentucky	4	35	0	0	0	0	0	0
4	Louisiana	8	115	0	0	1	10	1	60

Category Spread Within Region For 1983

Number of state departments or agencies		Number of Municipalities, counties, and regional authorities		Number of education 9–10 months		Number of education 11–12 months		Totals		Region
Organization (11)	Individual (12)	Organization (13)	Individual (14)	Organization (15)	Individual (16)	Organization (17)	Individual (18)	Organization (19)	Individual (20)	(21)
1	4	0	0	0	0	0	0	5	50	
0	0	0	0	0	0	0	0	4	52	
2	4	0	0	1	28	0	0	10	836	
2	3	0	0	1	12	0	0	8	266	
0	0	1	0	0	0	0	0	2	86	
0	0	0	0	1	15	0	0	3	21	
5	11	1	0	3	55	0	0	32	1,311	REG I
1	9	0	0	0	0	0	0	3	13	
0	0	0	0	0	0	0	0	3	23	
3	142	0	0	0	0	0	0	9	203	
1	6	0	0	0	0	0	0	12	1,290	
3	35	1	3	3	63	1	6	33	623	
0	0	1	10	3	63	0	0	11	1,040	
8	192	2	13	6	126	1	6	71	3,192	REG II
6	172	0	0	0	0	0	0	26	2,240	
0	0	0	0	2	15	1	40	11	92	
2	24	0	0	0	0	1	39	7	317	
20	77	1	5	2	32	0	0	44	917	
7	41	2	36	0	0	0	0	13	148	
1	9	2	34	1	41	0	0	13	1,689	
2	4	0	0	1	7	0	0	19	867	
5	260	1	10	1	14	0	0	15	357	
43	587	6	85	7	109	2	79	148	6,627	REG III
2	5	0	0	0	0	0	0	4	38	
0	0	0	0	0	0	0	0	6	237	
0	0	0	0	0	0	0	0	8	192	
0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	4	35	
0	0	0	0	1	13	1	12	12	210	

TABLE 37.—

Region (1)	State name (2)	Number of consulting firms		Number of construction firms		Number of design/ construct		Number of railroads, utilities, and industries	
		Organization (3)	Individual (4)	Organization (5)	Individual (6)	Organization (7)	Individual (8)	Organization (9)	Individual (10)
4	Mississippi	1	5	0	0	0	0	0	0
4	North Carolina	2	24	0	0	0	0	2	770
4	South Carolina	3	13	0	0	0	0	2	346
4	Tennessee	7	237	2	48	1	28	1	301
4	Virginia	7	55	0	0	1	49	0	0
4	West Virginia	1	0	0	0	0	0	2	203
4	Region totals	44	654	2	48	3	87	13	1,972
5	Colorado	6	101	0	0	0	0	1	409
5	Kansas	4	14	1	1	0	0	0	0
5	Montana	6	464	0	0	0	0	0	0
5	Nebraska	2	12	0	0	0	0	1	154
5	New Mexico	1	2	1	3	0	0	0	0
5	North Dakota	3	16	0	0	0	0	0	0
5	Oklahoma	2	5	0	0	0	0	0	0
5	South Dakota	0	0	0	0	0	0	1	209
5	Texas	25	436	0	0	0	0	3	1,003
5	Wyoming	4	19	0	0	0	0	0	0
5	Region totals	53	1,069	2	4	0	0	6	1,775
6	Arizona	1	4	0	0	0	0	0	0
6	California	35	328	1	0	1	1	1	3,784
6	Idaho	4	44	0	0	0	0	0	0
6	Nevada	1	9	0	0	0	0	0	0
6	Oregon	8	126	1	7	0	0	4	665
6	Utah	2	12	0	0	0	0	0	0
6	Washington	8	111	0	0	1	6	3	833
6	Region totals	59	634	2	7	2	7	8	5,282
7	Alaska	1	30	0	0	0	0	0	0
7	Hawaii	5	38	1	19	0	0	2	181
7	Without APO	0	0	0	0	0	0	0	0
7	Region totals	6	68	1	19	0	0	2	181

Continued

Number of state departments or agencies		Number of Municipalities, counties, and regional authorities		Number of education 9–10 months		Number of education 11–12 months		Totals		Region
Organization (11)	Individual (12)	Organization (13)	Individual (14)	Organization (15)	Individual (16)	Organization (17)	Individual (18)	Organization (19)	Individual (20)	(21)
0	0	0	0	1	5	0	0	2	10	
1	0	0	0	1	34	0	0	6	828	
3	6	0	0	1	19	0	0	9	384	
1	10	0	0	2	9,024	0	0	14	9,648	
4	167	0	0	0	0	1	18	13	289	
0	0	0	0	1	26	0	0	4	229	
11	188	0	0	7	121	2	30	82	12,100	REG IV
2	77	0	0	1	48	1	6	11	641	
0	0	0	0	1	15	1	36	7	66	
1	4	0	0	0	0	0	0	7	468	
0	0	1	8	0	0	0	0	4	174	
0	0	0	0	0	0	0	0	2	5	
0	0	0	0	0	0	0	0	3	16	
0	0	0	0	0	0	0	0	2	5	
0	0	0	0	0	0	0	0	1	209	
9	147	1	1	1	15	2	571	41	82	
0	0	0	0	1	21	0	0	5	40	
12	228	2	9	4	99	4	613	83	1,706	REG V
0	0	0	0	0	0	0	0	1	4	
17	274	2	505	6	138	0	0	63	5,030	
1	1	0	0	1	10	0	0	6	55	
0	0	0	0	0	0	0	0	1	9	
16	99	2	2	0	0	1	30	32	929	
1	2	0	0	0	0	0	0	3	14	
7	84	2	61	0	0	0	0	21	1,095	
42	460	6	568	7	148	1	30	127	7,136	REG VI
0	0	0	0	0	0	0	0	1	30	
2	66	0	0	1	9	0	0	11	313	
0	0	0	0	0	0	0	0	0	0	
2	66	0	0	1	9	0	0	12	343	REG VII

Appendix II.—Questionnaire

AMERICAN SOCIETY OF CIVIL ENGINEERS

345 EAST 47th STREET • NEW YORK, N. Y. 10017-2398 • (212) 705-7496

August - 1983

File: 5-4-4.12

TO: Partners, Principal Officers and Comptrollers
Chairmen, Department Heads and Deans

REQUEST FOR 1983 ASCE SALARY SURVEY DATA
ANALYSIS TO BEGIN SEPTEMBER 16, 1983

Gentlemen:

The American Society of Civil Engineers is conducting the seventeenth in its series of biennial salary surveys, and needs your assistance in the form of salary data to continue providing meaningful reports on the compensation of civil engineers as a service to the profession and the public.

Please take the time to see that this questionnaire is filled out as soon as possible, by the appropriate person if not yourself, and returned to ASCE in the enclosed envelope. Processing of the returns will begin September 16, 1983. The report should be available late in 1983 or early 1984. Each respondent may order a copy at a discount of 50% by using the order form on the last page of this questionnaire form. As always data from individual employers will be treated confidentially.

Thank you for your consideration of this request. Your cooperation will be greatly appreciated. If you have any questions or need extra forms please call the writer at (212) 705-7665.

Sincerely,

R. Lawrence Whipple

R. Lawrence Whipple
Department Head,
Professional Affairs

RLW/wpc/roc

1983 ASCE SURVEY OF CIVIL ENGINEERING SALARIES

Name of Organization

Address

City State Zip (5-9)

General nature of business

Name and title of respondent

Is the above information different from the mailing label? Yes ____ No ____

INSTRUCTIONS

1. Please refer to the ASCE Professional Grade Descriptions* (copy enclosed) and assign each engineering position in your organization to the appropriate ASCE Grade. The relationship between U.S. Civil Service Grades and ASCE Grades is shown in Table I of the enclosure. If a particular GRADE DOES NOT APPLY to your organization ENTER "X" under annual salary and number of employees. If at this time there are NO EMPLOYEES IN A PARTICULAR GRADE for which a SALARY RANGE is PROVIDED enter "0" under number of employees.
2. Report data in terms of *ANNUAL BASE SALARY* only. Monthly or weekly rates should be converted to annual salary. (Do not include items such as bonuses, profit sharing, etc.)
3. Round salary and incentive compensation to NEAREST WHOLE DOLLAR. If no incentive compensation enter "0".

QUESTIONNAIRE — PART I, SALARY DATA

1. Please indicate which of the major employment categories listed below best applies to your organization by putting the appropriate number in the box to the right ..... ☐ (10)
   1. Consulting
   2. Construction
   3. Design/Construct
   4. State Department or Agency
   5. Municipality or County
   6. Industry, Railroad or Utility
   7. Education: 9-10 months
   8. Education: 11-12 months
2. Please enter the appropriate State Code for your office location from the back of the ASCE Professional Grade Descriptions enclosed ..... ☐ (11-12)
   Geographic distribution is important to the survey. If reporting for more than one location please fill out a form or copy thereof for each.
3.

ASCE Professional GRADE*	ANNUAL BASE SALARY ($) (not monthly or weekly rate) RANGE ENTRANCE (14-19)	MAXIMUM (20-25)	Number of EMPLOYEES IN GRADE (If none, enter 0) (26-31)	$ VALUE OF INCENTIVE COMPENSATION IN 1982 (Bonuses and/or Profit sharing) (32-37)
I II	$	$		$
III	$	$		$
IV	$	$		$
V	$	$		$
VI	$	$		$
VII	$	$		$
VIII	$	$		$
IX	$	$		$

PART II. SALARY RELATED BENEFITS

Over the years numerous non-salary benefits have become a significant complement to annual base salary in making up total compensation. Therefore, it is essential to consider both when making a comparison or evaluation. For this reason, we ask that you INDICATE THE APPROXIMATE PERCENT of your ANNUAL BASE PAYROLL[1] represented by each of the benefit items listed below.

It is not necessary to provide detailed descriptions or pinpoint accuracy. We just need a good general picture in terms of approximate percentages that can be easily tabulated. For "Retirement", "Insurance" and other similar benefits, INDICATE ONLY THE ANNUAL CONTRIBUTION MADE BY THE ORGANIZATION for the benefit of the employee. If benefit is given, but percentage is not available, enter "N.A." If benefit is not given, enter "0".

	PERCENTAGE[2] OF ANNUAL BASE PAYROLL	COMMENTS
1. Vacation	_____% (14-17)	
2. Holidays	_____% (18-21)	
3. Sick Leave	_____% (22-25)	
4. Military Leave and Jury Duty	_____% (26-29)	
5. Incentive Compensation (1982)	_____% (30-33)	
6. Retirement Income and Deferred Profit Sharing (ESOP, SRP, TRASOP, etc.)	_____% (34-37)	
7. Social Security, Unemployment and Workmen's Compensation Taxes	_____% (38-41)	
8. Professional Dues, Licenses and Meetings	_____% (42-45)	
9. Insurance — medical	_____% (46-49)	
10. Insurance — life	_____% (50-53)	
11. Education	_____% (54-57)	
12. Separation Allowance	_____% (58-61)	
13. Other — including vehicle, parking, etc.	_____% (62-65)	

(1) Annual Base Payroll is defined as base payroll (combined salaries) for 52 weeks, and does not include overtime or incentive compensation (bonuses and or profit sharing).

(2) Use decimals for fractions of a percent — i.e., 2.50%.

GENERAL INFORMATION

The following questions refer to MANUAL 55 "ASCE GUIDE TO EMPLOYMENT CONDITIONS FOR CIVIL ENGINEERS." This publication has been widely distributed by the Society in an attempt to inform its members, employers and employees alike, of reasonably acceptable personnel management practices and to provide a common basis for communication, cooperation and mutual understanding. We are interested in learning your reaction to this publication.

As with other portions of the questionnaire, individual responses to the following questions WILL BE KEPT CONFIDENTIAL.

	Yes		No
1. Are you familiar with ASCE Manual 55?	☐	(14)	☐
If yes, how do employment conditions in your organization compare with recommendations in each section of Manual 55? (Answer for each section) 1. Better 2. Similar 3. Not as Good 4. No opinion			
Section 1 — Professional Employment	☐	(15)	
Section 3 — Recommended Salary Ranges	☐	(16)	
Section 4 — Recommended Benefits	☐	(17)	
	Yes		No
2. Have you come to an understanding with your employees on their Professional Grade Classification?	☐	(18)	☐
Do you use the ASCE Professional Grade Descriptions?	☐	(19)	☐

3. How many engineers in your employ have as their highest degree a BS _____ (21-24) ? an MS _____ (25-28) ? a Ph.D. _____ (29-32) ?

4. How many are registered Professional Engineers _____ (33-36) ? EIT's _____ (37-40) ?

5. Have you used previous ASCE Salary Survey Reports? Yes _____ No _____

6. If so, do you think the data is representative of the profession? Yes _____ No _____

7. Was this questionnaire easy to understand? Yes _____ No _____

8. Recommendations for changes in future salary survey questionnaires:

_____

_____

THANK YOU FOR YOUR COOPERATION.
PLEASE BE SURE TO RETURN THIS QUESTIONNAIRE BEFORE September 16, 1983
in the self-addressed envelope provided.

ASCE will provide a copy of the Salary Survey Report (regular price $12.00) and/or Manual 55 (regular price $7.00) at a discount of 50% to those who respond to this questionnaire. If you wish to take advantage of this offer, just fill out the order form below, enclose check for the appropriate amount and return with questionnaire to R.L. Whipple, c/o ASCE.

PLEASE FORWARD TO:

Name _____ Title _____

Firm or Agency _____

Address _____ City _____ State _____ Zip _____

One copy of: ASCE Salary Survey Report (discount price $6.00) _____

To allow time for data processing and report preparation, delivery of this order is scheduled for December 15, 1983.

Appendix III.—ASCE Professional Grade Descriptions

ASCE PROFESSIONAL GRADE DESCRIPTIONS

The purpose of these grade descriptions is to enable employers and employees to ascertain an individual's professional grade. The system can also be a helpful tool for encouraging engineers to improve their ability so as to qualify for higher grades and to facilitate agreement between the employer and the employee regarding each engineer's level of responsibility.

These grade descriptions are compatible with those of the U.S. Department of Labor, Bureau of Labor Statistics (BLS) and of the National Society of Professional Engineers (NSPE). It must be stressed that the grade descriptions are intended to cover the requirements of a wide range of typical engineering organizations but cannot possibly fit all. Many employers may not have the full range of positions listed. Table #1 (on the back page) indicates Federal G.S. equivalents with ASCE grades.

Descriptions should be considered as typical characteristics of a particular grade, rather than as desirable or minimum requirements. For example, it is expected that in many areas of practice, such as research and development, individuals filling middle or higher level positions would routinely have graduate degrees, though this is not indicated. All descriptive matter should be considered when a position is being evaluated. Literal conformance with every item in the descriptions is not necessary when there is a preponderance of evidence that the person measures up to the intended level of competence and responsibility.

Suitable professional recognition and salary scales should be provided for the engineer who selects the technical path for advancement so that he may achieve the same or greater professional and economic status as the engineer who advances along the management path. The grade descriptions include language applicable to both.

Many positions may require an advanced degree. There also may be cases where individuals holding engineering positions have degrees in certain scientific or other closely related fields.

ASCE PROFESSIONAL

	Engineer I/II	Engineer III	Engineer IV
General Characteristics	This is the entry level for professional work. Performs assignments designed to develop professional work knowledge and abilities requiring application of standard techniques, procedures, and criteria in carrying out a sequence of related engineering tasks. Limited exercise of judgment is required on details of work and in making preliminary selections and adaptations of engineering alternatives.	Independently evaluates, selects, and applies standard engineering techniques, procedures, and criteria, using judgment in making minor adaptations and modifications. Assignments have clear and specified objectives and require the investigation of a limited number of variables. Performance at this level requires developmental experience in a professional position or equivalent graduate level education.	As a fully competent engineer in all conventional aspects of the subject matter of the functional area of the assignments; plans and conducts work requiring judgment in the independent evaluation, selection, and substantial adaptation and modification of standard techniques, procedures, and criteria. Develops new approaches to problems encountered. Requires sufficient professional experience to assure competence as a fully trained worker, or for positions primarily of a research nature, completion of all requirements for a doctoral degree may be substituted for experience.
Direction Received	Supervisor screens assignments for unusual or difficult problems and selects techniques and procedures to be applied on nonroutine work. Receives close supervision on new aspects of assignments.	Receives instructions on specific assignment objectives, complex features, and possible solutions. Assistance is furnished on unusual problems and work is reviewed for application of sound professional judgment.	Independently performs most assignments with instructions as to the general results expected. Receives technical guidance on unusual or complex problems and supervisory approval on proposed plans for projects.
Typical Duties & Responsibilities	Using prescribed methods, performs specific and limited portions of a broader assignment of an experienced engineer. Applies standard practices and techniques in specific situations; adjusts and correlates data; recognizes discrepancies in results and follows operations through a series of related detailed steps or processes.	Performs work which involves conventional types of plans, investigations, surveys, structures, or equipment which typically lack complex features for which there are precedents. Assignments usually include one or more of the following: Equipment design and development; test of materials; preparation of specifications; process study; research investigations; report preparation; and other activities of limited scope requiring knowledge of principles and techniques commonly employed in the specific narrow area of assignments.	Plans, schedules, conducts or coordinates detailed phases of the engineering work in a part of a major project or in a total project of moderate scope. Performs work which involves conventional engineering practice but may include a variety of complex features such as conflicting design requirements, unsuitability of conventional materials, and difficult coordination requirements. Work requires a broad knowledge of precedents in the specialty area and a good knowledge of principles and practices of related specialties.
Responsibility for Direction of Others	May be assisted by a few aides or technicians.	May supervise or coordinate the work of draftsmen, technicians, and others who assist in specific assignments.	May supervise or coordinate the work of engineers, draftsmen, technicians, and others who assist in specific assignments.
Typical Position Titles	Junior Engineer, Associate Detail Engineer, Engineer in Training, Asst. Research Engineer, Construction Inspector.	Engineer or Assistant Engineer, Project, Plant, Office, Design, Process, Research, Inspector, Engineering Instructor.	Engineer or Assistant Engineer, Resident, Project, Plant, Office, Design, Process, Research, Chief Inspector, Assistant Professor.
Education	Bachelor's Degree in engineering from an ABET accredited curriculum or equivalent, plus appropriate continuing education.		
Registration Status	Certified Engineer-in-Training.		Registered Professional Engineer.
Typical Professional Attainments	Member of Professional and Technical Societies (Associate Grade or Equivalent).		Member of Professional Society (Member Grade). Member of Technical Society (Associate Grade or Equivalent).

GRADE DESCRIPTIONS

	Engineer V	Engineer VI	Engineer VII
	Applies intensive and diversified knowledge of engineering principles and practices in broad areas of assignments and related fields. Makes decisions independently on engineering problems and methods, and represents the organization in conferences to resolve important questions and to plan and coordinate work. Requires the use of advanced techniques and the modification and extension of theories, precepts and practices of his field and related sciences and disciplines. The knowledge and expertise required for this level of work usually result from progressive experience.	Has full technical responsibility for interpreting, organizing, executing, and coordinating assignments. Plans and develops engineering projects concerned with unique or controversial problems which have an important effect on major organization programs. This involves exploration of subject area, definition of scope and selection of problems for investigation, and development of novel concepts and approaches. Maintains liaison with individuals and units within or outside his organization with responsibility for acting independently on technical matters pertaining to his field. Work at this level usually requires extensive progressive experience.	Makes decisions and recommendations that are recognized as authoritative and have an important impact on extensive engineering activities. Initiates and maintains extensive contacts with key engineers and officials of other organizations and companies, requiring skill in persuasion and negotiation of critical issues. At this level individuals will have demonstrated creativity, foresight, and mature engineering judgment in anticipating and solving unprecedented engineering problems, determining program objectives and requirements, organizing programs and projects, and developing standards and guides for diverse engineering activities.
	Supervision and guidance relate largely to overall objectives, critical issues, new concepts, and policy matters. Consults with supervisor concerning unusual problems and developments.	Supervision received is essentially administrative with assignments given in terms of broad general objectives and limits.	Supervision received is essentially administrative with assignments given in terms of broad general objectives and limits.
	One or more of the following: (1) In a supervisory capacity, plans, develops, coordinates, and directs a large and important engineering project or a number of small projects with many complex features. A substantial portion of the work supervised is comparable to that described for engineer IV. (2) As individual researcher or worker, carries out complex or novel assignments requiring the development of new or improved techniques and procedures. Work is expected to result in the development of new or improved techniques and procedures. Work is expected to result in the development of new or refined equipment, materials, processes, products, and/or scientific methods. (3) As staff specialist, develops and evaluates plans and criteria for a variety of projects and activities to be carried out by others. Assesses the feasibility and soundness of proposed engineering evaluation tests, products, or equipment when necessary data are insufficient or confirmation by testing is advisable. Usually performs as a staff advisor and consultant as to a technical specialty, a type of facility or equipment, or a program function.	One or more of the following: (1) In a supervisory capacity (a) plans, develops, coordinates, and directs a number of large and important projects or a project of major scope and importance, or (b) is responsible for the entire engineering program of an organization when the program is of limited complexity and scope. The extent of his responsibilities generally require a few (3 to 5) subordinate supervisors or team leaders with at least one in a position comparable to level V. (2) As individual researcher or worker conceives, plans, and conducts research in problem areas of considerable scope and complexity. The problems must be approached through a series of complete and conceptually related studies, are difficult to define, require unconventional or novel approaches, and require sophisticated research techniques. Available guides and precedents contain critical gaps, are only partly related to the problem, or may be largely lacking due to the novel character of the project. At this level, the individual researcher generally will have contributed inventions, new designs, or techniques which are of material significance in the solution of important problems. (3) As a staff specialist serves as the technical specialist for the organization (division or company) in the application of advanced theories, concepts, principles and processes for an assigned area of responsibility (i.e., subject matter, function, type of facility or equipment, or product). Keeps abreast of new scientific methods and developments affecting his organization for the purpose of recommending changes in emphasis of programs or new programs warranted by such developments.	One or both of the following: (1) In a supervisory capacity is responsible for (a) an important segment of the engineering program of a organization with extensive and diversified engineering requirements, or (b) the entire engineering program of an organization when it is more limited in scope. The overall engineering program contains critical problems the solution of which requires major technological advances and opens the way for extensive related development. The extent of his responsibilities generally requires several subordinate organizational segments or teams. Recommends facilities, personnel, and funds required to carry out programs which are directly related with and directed toward fulfillment of overall organization objectives. (2) As individual researcher and consultant is a recognized leader and authority in his organization in a broad area of specialization or in a narrow but intensely specialized field. Selects research problems to further the organization's objectives. Conceives and plans investigations of broad areas of considerable novelty and importance for which engineering precedents are lacking in areas critical to the overall engineering program. Is consulted extensively by associates and others with a high degree of reliance placed on his scientific interpretations and advice. Typically, will have contributed inventions, new designs, or techniques which are regarded as major advances in the field.
	Supervises, coordinates, and reviews the work of a small staff of engineers and technicians, estimates manpower needs, and schedules and assigns work to meet completion date. Or, as individual researcher or staff specialist may be assisted on projects by other engineers or technicians.	Plans, organizes, and supervises the work of a staff of engineers and technicians. Evaluates progress of the staff and results obtained, and recommends major changes to achieve overall objectives. Or, as individual research or staff specialist may be assisted on individual projects by other engineers or technicians.	Directs several subordinate supervisors or team leaders, some of whom are in positions comparable to Engineer VI, or, as individual researcher and consultant, may be assisted on individual projects by other engineers and technicians.
	Senior or Principal Engineer, Resident Project Office, Design Process, Research, Asst. Division Engineer, Associate Professor, Project Leader.	Senior or Principal Engineer, Division or District Engineer, Production Engineer, Assistant Division District or Chief Engineer, Consultant, Professor, City or County Engineer.	Principal Engineer, Division or District Engineer, Department Manager, Director or Assistant Director of Research, Consultant, Professor, Distinguished Professor or Department Head, Assistant Chief or Chief Engineer, City or County Engineer.
	Member of Technical Society (Member Grade). Publishes engineering papers, articles, textbooks, or makes presentations, gives lectures, provides training, etc.		

continued on next page

continued from last page

	Engineer VIII	Engineer IX
General Characteristics	Makes decisions and recommendations that are recognized as authoritative and have a far-reaching impact on extensive engineering and related activities of the company. Negotiates critical and controversial issues with top level engineers and officers of other organizations and companies. Individuals at this level demonstrate a high degree of creativity, foresight, and mature judgment in planning, organizing, and guiding extensive engineering programs and activities of outstanding novelty and importance.	An engineer in this level is either (1) in charge of programs so extensive and complex as to require staff and resources of sizable magnitude (e.g., research and development, a department of government responsible for extensive engineering programs, or the major component of an organization responsible for the engineering required to meet the objectives of the organization); or (2) is an individual researcher or consultant who is recognized as a national and or international authority and leader in an area of engineering or scientific interest and investigation.
Direction Received	Receives general administrative direction.	
Typical Duties & Responsibilities	One or both of the following: (1) In a supervisory capacity is responsible for (a) an important segment of a very extensive and diversified highly engineering program, or (b) the entire engineering program when the program is of moderate scope. The programs are of such complexity that they are of critical importance to overall objectives, include problems of extraordinary difficulty that often have resisted solution, and consist of several segments requiring subordinate supervisors. Is responsible for deciding the kind and extent of engineering and related programs needed for accomplishing the objectives of the organization, for choosing the scientific approaches, for planning and organizing facilities and programs, and for interpreting results. (2) As individual researcher and consultant, formulates and guides the attack on problems of exceptional difficulty and marked importance to the organization or industry. Problems are characterized by their lack of scientific precedents and source material, or lack of success of prior research and analysis so that their solution would represent an advance of great significance and importance. Performs advisory and consulting work for the organization as a recognized authority for broad program areas or in an intensely specialized area of considerable novelty and importance.	
Responsibility for Direction of Others	Supervises several subordinate supervisors or team leaders, some of whose positions are comparable to Engineer VII, or individual researchers some of whose positions are comparable to Engineer VII and sometimes Engineer VIII. As an individual researcher and consultant may be assisted on individual projects by other engineers or technicians.	
Typical Position Titles	Chief Engineer, Bureau Engineer, Director of Research, Department Head or Dean, County Engineer, City Engineer, Director of Public Works, Senior Fellow, Senior Staff, Senior Advisor, Senior Consultant, Engineering Manager	Director of Engineering, General Manager, Vice President, President, Partner, Dean, Director of Public Works
Education		
Registration Status		
Typical Professional Attainments		

TABLE #1
ASCE GRADES / FEDERAL G.S. EQUIVALENTS

ASCE GRADES	FEDERAL G.S.
I/II	5-7
III	9
IV	11
V	12
VI	13
VII	14
VIII	15
IX	16 and above

State Codes for "Office Location"

(see page 1 of questionnaire)

1 Alabama
2 Alaska
3 Arizona
4 Arkansas
5 California
6 Colorado
7 Connecticut
8 Delaware
9 District of Columbia
10 Florida
11 Georgia
12 Hawaii
13 Idaho
14 Illinois
15 Indiana
16 Iowa
17 Kansas
18 Kentucky
19 Louisiana
20 Maine
21 Maryland
22 Massachusetts
23 Michigan
24 Minnesota
25 Mississippi
26 Missouri
27 Montana
28 Nebraska
29 Nevada
30 New Hampshire
31 New Jersey
32 New Mexico
33 New York
34 North Carolina
35 North Dakota
36 Ohio
37 Oklahoma
38 Oregon
39 Pennsylvania
40 Rhode Island
41 South Carolina
42 South Dakota
43 Tennessee
44 Texas
45 Utah
46 Vermont
47 Virginia
48 Washington
49 West Virginia
50 Wisconsin
51 Wyoming
52 Canal Zone
53 Guam
54 Puerto Rico
55 Virgin Islands

98 Outside the U.S. *with* APO
99 Outside the U.S. *without* APO

Appendix IV.—Bibliography of Previous ASCE Biennial Salary Survey Reports

1951—*Civil Engineering*, August, 1951*
1953—*Civil Engineering*, July, 1953*
1955—Proc. Paper 761, August, 1955*
1957—Proc. Paper 1347, *Journal of the Board of Direction*, August, 1957*
1959—Proc. Paper 2188, *Journal of Professional Practice*, September, 1959*
1961—Proc. Paper 3146, *Journal of Professional Practice*, May, 1962*
1963—Proc. Paper 3897, *Journal of Professional Practice*, May, 1964*
1965—Proc. Paper 4820, *Journal of Professional Practice*, May, 1966*
1967—Proc. Paper 5984, *Journal of Professional Practice*, June, 1968*
1969—Proc. Paper 7500, *Journal of Professional Practice*, September, 1970*
1971—Proc. Paper 9025, *Engineering Issues—Journal of Professional Activities*, July,1972*
1973—Proc. Paper 10450, *Engineering Issues—Journal of Professional Activities*, April, 1974*
1975—Proc. Paper 12090, *Engineering Issues—Journal of Professional Activities*, April, 1976*
1977—Proc. Paper 14110, *Engineering Issues—Journal of Professional Activities*, October, 1978*
1979—Proc. Paper 15568, *Issues in Engineering—Journal of Professional Activities*, July, 1980*
1981—ASCE Salary Survey, 1981

Note: The 1979 Salary Survey was the last one to be published as a Proceedings Paper of the Society. Starting with the 1981 Survey, a summary of key findings was printed in an ASCE publication for general information of the membership, and the comprehensive survey data and evaluation will be available as a separate Society special publication.

*Out-of-print, no longer available from ASCE. Copies can be obtained from the Engineering Societies Library, 345 East 47th St., New York, N.Y. 10017.

ISBN 0-87262-410-2